A1200 Expansion Solutions—p.8



February 1995
U.S.A. $3.95
Canada $4.95
UK £2.95



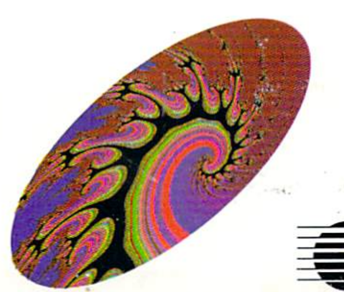
FABULOUS FRACTALS!

4 Super Programs For Dynamite Color Graphics

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02
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An IDG Communications Publication

Stuck with a dead word processor?

Waiting for an upgrade that will never come?

KindWords RIP 1987-1990

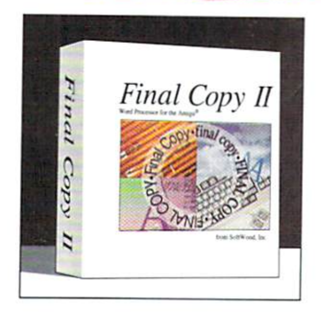
Excellence! RIP 1989-1993

ProWrite RIP 1986-1993

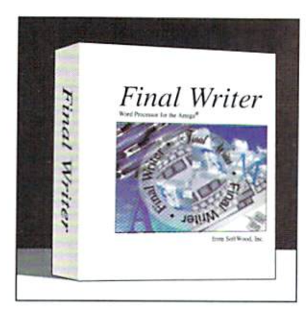
Scribble! RIP 1985-1990

TextCraft RIP 1985-1986

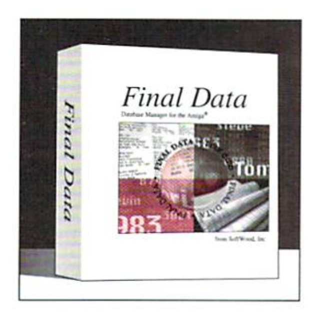
Now, if you own **ProWrite, Scribble!, KindWords, TextCraft, Excellence!**, or any other word processor, you can **upgrade** to Final Copy II or Final Writer for a special, **low price**. Call 1-800-247-8314 for details and to order your upgrade to the latest in word processing technology.



Release 2. "Readers' Choice Award 1993", Amazing Computing; "Award '93 - Best Software Product", Amiga Plus (Germany), "Product of the Year 1993", Amiga Magazine (Germany). What more can we say? This is the most popular and most used word processor on the Amiga today. It features a 110,000 word speller, 1.4 million word thesaurus; auto-hyphenation; search and replace; tab stops; adjustable margins; word and sentence counts; paragraph sorting; on-screen math; ARexx port; style sheets; drawing tools; imported IFF graphics; master pages; Compugraphic, Type-1, and NimbusQ outline font support; 30 outline fonts; and the best printing possible on any Workbench supported printer. System requirements: 1 megabyte of RAM, 2 floppy drives, and Workbench 1.3 or higher.



New Release 3. "...Final Writer is arguably the best word processor yet released for the Amiga.", Amiga World, March 1994. "...Final Writer is the top Amiga word processor to rival even the Mac and PC heavyweights.", CU Amiga (England), January 1994. Final Writer has all of Final Copy II's features (see above) plus many more. It includes: undo; easy bold, italic, and underlining; table of contents, table of illustrations, endnotes, bibliography, and index generation; sections; multiple master pages; EPS graphic support; 120 outline fonts; rotating graphics; movable text blocks; and a user button strip. Release 3 now includes easy page numbering, drag and drop, type and spell, polygon drawing tool, special shape drawing tools, and dictionary hyphenation. Requirements: 2.5 megabytes of RAM, hard drive, and Workbench 2.04 or higher.



New program. Final Data is the new database manager for the Amiga. It is designed for people who need a convenient tool to keep track of lists of information. It combines very fast sorting and searching with quick printing of reports and labels. Final Data is ideal for name and address lists, video libraries, customer lists, references, etc. Anyone can learn to set up a database, enter data, and print reports and labels in a matter of minutes – not days! Reports come complete with page headings that include title and page numbers. Reports may be printed with totals and row counts. Labels can be defined in a variety of formats. Use with Final Copy II or Final Writer for the best mail-merge possible. Accepts PenPal, InfoFile, MiAmiga File, and File IIsg databases. Requirements: 1 floppy drive, 512K RAM, and WB 1.3 or higher.

1-800-247-8314 SoftWood, Inc.



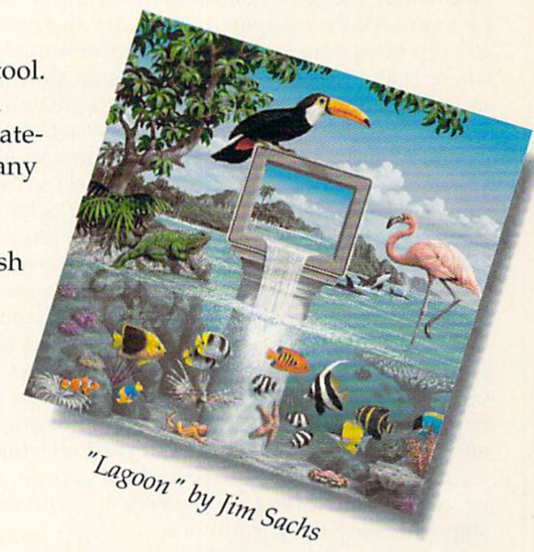




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Brilliance 2.0 is the Amiga's most powerful paint program and a sophisticated 2D animation system combined into one breakthrough tool. The award-winning creators of DeluxePaint ST, Deluxe PhotoLab and DCTV Paint dedicated over three years to one goal... redefining the state-of-the-art. The result is simply the best graphics tool ever created for any computer. If you're still using DeluxePaint IV, get your hands on Brilliance 2.0. It's fast... *real fast*, and it's got higher resolution, better anim tools, dozens of swap screens*, true 24-bit editing, powerful brush manipulation, and multiple Undo/Redo levels (just for starters). Upgrade today to the ultimate paint and animation system.



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- *"The number one paint and animation package for the Amiga"* - Amiga User International
- *"Nothing out there can match it"* - Amiga Computing
- *"The best art package available for the Amiga"* - C U Amiga
- *"the Amiga's premiere paint package"* - Amiga Shopper
- *"Excellent!"* - Amiga Format

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Digital Creations is a trademark of Play Inc. Deluxe Paint is a trademark of Electronic Arts. Shipping and handling extra.

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FIRST IMPRESSIONS

Now is the time for all good men . . .

Recently, I received a phone call from a reader who has been checking in with our Commodore update line (603/924-2195) regularly over the past few months. His situation is typical of many Amiga users who have written, called, or e-mailed during the long impasse in the resolution of the Commodore liquidation . . . and the story bears retelling.

He has a fair amount of money tied up in his system (a well-equipped A3000 he uses professionally for video, animation, and presentation graphics). Like many of you, he has needs for equipment upgrades and new software to keep his system up to date in a professional arena where changes and innovations happen almost from month to month. His concerns cover availability of such equipment and, more importantly, *commitment* to new development, support, and service in the Amiga market. His questions to me, not surprisingly, were, Will a resolution of the Commodore ownership deadlock take place? When will it happen? Will it make a difference?

Given the time that has already elapsed since Commodore went under, these are tough questions. Even before Commodore folded, its leaders (sic) squandered much of the Amiga's innovative edge in personal computing by failing both to market existing product and to pursue future technological development. (At least CBM engineers continued on their own while Irving fiddled and Medhi burned—money, that is.) This situation is exacerbated by the limbo we find ourselves in as the process of establishing new ownership—and *real* leadership—for the Amiga continues.

We all know how difficult the legal complexities of resolving the Commodore quagmire are. Some bold and forthright individuals and groups are valiantly attempting to assume leadership in their bids to acquire Commodore and its Amiga assets. But time is running out.

There must be an active resolution to the ownership dilemma. Whatever effort, whatever cooperation, whatever force must be brought to bear must take place NOW! There is still such a proactive community of Amiga enthusiasts out there hungry for new product, new technology, and effective product support that it makes powerful, compelling economic sense to continue the existence of the Amiga line. The only thing that can weaken such economic viability is further delay.

So let's roll up our sleeves, everybody, and make it happen. For all the people like my caller at the beginning of this column, we owe it to ourselves to move forward to the next stage in the long evolution of what has been the finest personal computer of the entire past decade.

Daniel Sullivan

Daniel Sullivan
Editor in Chief

AmigaWorld

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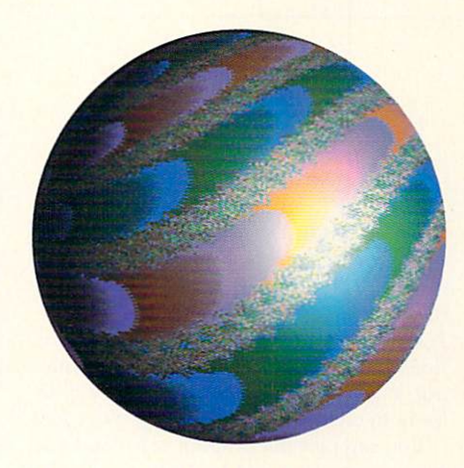
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AmigaWorld (ISSN 0883-2390) is an independent journal not connected with Commodore Business Machines, Inc. *AmigaWorld* is published monthly by TechMedia Publishing, Inc., an IDG Company, 80 Elm St., Peterborough, NH 03458. US subscription rate is $29.97, one year; $57.97, two years; $83.97, three years; Canada, $41.97 (includes GST), and Mexico $38.97. Foreign Surface $49.97. Foreign Airmail $84.97. US funds drawn on US bank. Prepayment is required on all foreign subscriptions. All foreign rates are one-year only. Second-class postage paid at Peterborough, NH, and at additional mailing offices. Phone: 603-924-0100. On-line on BIX: Amiga.World (in Amiga.exchange); CompuServe: 76376,2137; Portal: Go AmigaWorld. Entire contents copyright 1994 by TechMedia Publishing, Inc. No part of this publication may be printed or otherwise reproduced without written permission from the publisher. **Postmaster:** Send address changes to *AmigaWorld*, Subscription Services, PO Box 595, Mt. Morris, IL 61054-7901. Nationally distributed by Kable News Co. *AmigaWorld* makes every effort to ensure the accuracy of articles, listings, and diagrams published in the magazine. *AmigaWorld* assumes no responsibility for damages due to errors or omissions. PRINTED IN THE USA. Posted under Canadian International Publication agreement # 0257478.

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VOLUME 11, NUMBER 2, FEBRUARY 1995



"Brave New Worlds of Fractals" p. 12

FRACTAL IMAGES (COVER) BY DANIEL WOLF

OVERSCAN

News, New Products and More

Scala At Work

With an impressive list of InfoChannel clients including the SAS Scandinavia Hotel, Esso Norway Gas, and Ford Communications Network, a division of Ford Motor Company, you'd think ***Scala*** would be content to rest on its laurels. But the Virgina-based company couldn't be busier.

At the top of its new projects is **Backbone**, a cohesive structure for interactive television and multimedia application development. It lets developers create high-end multimedia applications through an object-oriented environment, known as Scala's HumanTouch. Combined with other Scala software, the HumanTouch interface lets you convert Lingua commands into event objects, which, in turn, store the names of media and EXes (plug-in modules that perform external functions, such as VCR control). In a relatively short period of time, a developer can create sophisticated multimedia applications.

Scala's **Interactive Television (ITV) Player** is a resident set-top box player. ITV uses Scala's authoring and playback engine to support graphics, sounds, animations, and digital-video file formats. ITV gives television network providers and other professionals a user-friendly scripting environment to work within.

Also new from Scala is the **MPEG Decoder MD100**. Designed and produced by Ingenieurburo Hellfrich in Germany, the MD100 is an expansion card for the A2000/3000/4000 that plays back MPEG-1 audio, video, and system streams. Besides offering standard RGB video output, the MD100 includes a video module for both composite and Y/C video output.

You can play back digital video and animation streams in 24-bit PAL at 352x288 or NTSC at 352x240 resolutions, at speeds of 25 and 30 frames per second (fps), respectively. The card uses MPEG video decoding that complies with the ISO CD 11172 data-compression standard—a standard that provides video-compression quality roughly on-par with S-VHS. The MPEG animations the unit plays back aren't of the silent movie variety, either, as full 16-bit stereo sound up to 48 KHz is also supported. The MD100 promises full control over MPEG streams, with no wait times for interactive-video systems, and MD100 uses both modem and ISDN lines to transfer the digital signals. The unit also supports an infinite number of Scala's InfoChannel Player Stations.

Amiga Advice

It's time to hit the books again (and videos, too). If you need some tips on your Amiga or a brush-up on LightWave, you should add these reference titles to your home library.

Trying to scale the learning curve of LightWave 3-D? Let ***Dark Horse Productions*** be your guide. Its **Flying Logo Animation, Bones and Organic Motion, Displacement and Bump Mapping**, and **Modeling and Animating Machines** instructional videos (each $39.95) promise to have you animating in LightWave like a pro.

Bruce Smith Books is offering a (booster) shot in the arm for AmigaDOS 3.1 users by bundling copies of its popular Amiga titles. **Amiga Workbench 3 Booster Pack** contains two books, Workbench 3 A to Z Insider Guide and Disks and Drivers Insider Guide, with a new 75-minute video, A1200—A Deeper Look. For AGA Amiga novices, Bruce Smith also offers the **A1200 Beginner's Pack**.

Commodore Watch

At press time, *AW* was still awaiting confirmation that Creative Equipment International (CEI) would sign a sales agreement offering to purchase the Amiga technology rights and Commodore assets. Such an offer will then trigger the final, "auction" round of the bidding that will wind up the long liquidation process. As reported previously, after CEI signs a written offer, the former management team at Commodore UK (or anyone else still interested in bidding) can make one final counter bid at least $200,000 higher than that of CEI.

Contributing to the delay in CEI's signing were some unexpected difficulties in verifying the existing Amiga inventory. During the past month, CEI's Alex Amor visited the Philippines to survey the Amiga stock. A vast quantity of equipment, residing on several thousand pallets, filled an enormous warehouse adjacent to Commodore's former manufacturing facility. Mr. Amor reported that it was going to take considerably more time than he had anticipated to verify the inventory contents.

In addition to getting existing Amiga stock into the distribution pipeline, Mr.Amor, during several recent online conferences, has reaffirmed his commitment to new-product development. While not offering specifics, he stated that CEI would quickly roll out at least two new Amiga products should his bid be successful.

—DS

To locate the vendors of products mentioned, see the "Manufacturers'/Distributors' Addresses" list on p. 61.



Denny on DOS

HINTS & TIPS FOR MASTERING THE OPERATING SYSTEM

By Denny Atkin

#9—Finding the Amiga's Secrets

This month we'll abandon the useful and instead take a look at something fun. Hidden within each version of the Amiga's operating system is a bunch of secret messages left there by the Amiga development team. Some are simple credits, some are in-jokes, and a few are editorial comments about Commodore's marketing. Methods of finding and viewing these messages vary with the version of the operating system you're running.

Workbench 1.2 and 1.3

The AmigaDOS 1.x secret messages give thanks to the original Amiga development team. It really takes two people (or a three-handed extraterrestrial) to see these.

Reboot your computer and make sure that the Workbench screen is active. Have one person hold down both sets of Shift and Alt keys on the keyboard. Then press and hold each of the function keys in turn. A different message will appear for each key.

You might also try popping a disk in and out of DF0: while holding down the above key sequence. Early versions of AmigaDOS 1.2 (the enhancer kit shipped for the A1000) contained a rather vicious dig at Commodore from the original Amiga programmers that would appear when you ejected the disk. Later 1.2 releases with the A500 and A2000 were toned down to compliments.

Workbench 2

Soon after upgrading to Workbench 2, I received a cryptic e-mail message from an anonymous source at Commodore's old VAX minicomputer. It said "Control the alternate menus to shift into an enlightened state." Now, at this point, you can put the magazine aside and try to figure the method out for yourself, as I did. But if you want the scoop, just keep reading.

As with the Workbench 1.x secret messages, you'll need three hands to see these. First, click on the Workbench window with the left mouse button to activate it. Now, press and hold down the Ctrl key, both Alt keys, and both Shift keys. Use the mouse to select any of the Workbench menu items. Then release the keys and choose Last Message from the Workbench menu. You'll see a secret message. Repeat this for every Workbench menu item—each has its own message.

> **Challenge:**
>
> Without doing a full disassembly/trace of the secret message-display routine, can you find the message text in the Kickstart ROM? (It *is* in there somewhere.)

Workbench 3: The Puzzle

Of course, no new release of Workbench arrives without a hidden secret or two. The Easter eggs in AmigaDOS 3, though, were hidden just a bit too well. Just as my book, *Denny Atkin's Best Amiga Tips and Secrets*, was about to go to press last year, I received another mysterious note from Commodore's minicomputer, this one giving clues on finding the secret messages in Workbench 3.0. I didn't have time to puzzle them out, so I just tossed them in the book, trusting that enterprising readers would figure out what I couldn't. More than a year later, I was still getting pleas from readers to spill the beans—it seems the clues were just a bit too obscure for us.

The following two clues are the ones I received. Give yourself a huge pat on the back (you might use that third hand you used in the exercises above) if you can access the secret messages using these clues—nobody I know was able to do so.

Clue #1: Control is given to those who are shifted four from the start and do not give up on the alternate course.

Clue #2: When it is about time to learn the secrets of the master, one must also qualify for the enlightenment.

Workbench 3: The Solution

Couldn't find them? Don't feel badly; you're in good company. The hints above were printed in my book, and I got dozens of e-mail letters from people asking for the solution. The problem was, even I couldn't figure them out. I finally tracked down Deep Byte, now late of Commodore, and he filled me in on the exact procedure. It's a doozy, and I feel better about needing help.

First, the technical description: The messages show up when the About menu item is selected while the Ctrl, Shift, and Alt keys are being held down and the Workbench Open count turns 16 due to the requester appearing.

Here's the procedure in plain English:

1) Boot your Amiga. If you have many Workbench tools (such as AppIcons) running, you may end up being past 16 already, so you may have to shut some of them down.

2) Press and hold down the right mouse button.

3) Press and hold down the Ctrl, left-Shift, left-Alt, right-Shift, and right-Alt keys.

4) Select "About" from the Workbench menu.

5) Move the About window aside (don't close it), click on the Workbench window again, and repeat from step 2. Within 15 tries, a different About box should open. If this does not happen, you may have the Workbench.library open too many times. To make this work, reboot without running the startup sequence, start Workbench (using the LoadWB command), and try again. ■

Denny Atkin is author of the book ***Denny Atkin's Best Amiga Tips and Secrets****. Send suggestions to him via e-mail at DennyAmiga@aol.com, or write to him c/o* ***AmigaWorld****.*

ALL-IN-ONE CD-ROMs

Almathera's **Amiga Desktop Video CD** is sure to delight video and ray-tracing enthusiasts alike, offering a little bit of everything all rolled onto a single disc. The CD not only contains a wide variety of fonts, but also more than 150 3-D objects and 100MB worth of textures and backgrounds. On top of all that, Almathera has even thrown in some PD utilities for good measure!

The Club Amiga de Montreal (CAM) has compiled a collection of public-domain utilities, games, applications, and more complete with an index. This collection is also available from Almathera.

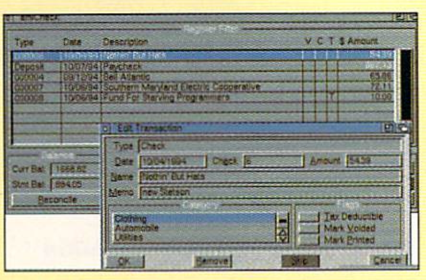
PAPERLESS CHECKING

Tired of paying late charge fees on your credit card bills? Two new accounting software packages will computerize your checkbook so you'll always be on top of your finances.

Managing your money is a pinch with **Pretium** (***Intelligent Designs***); simply enter a transaction, print out a check, and bingo! Pretium will generate a report so you can see just where your money goes.

AmiCheck ($25, ***Douglas M. Dyer***) offers a wealth of features. Foremost is its six levels of sorting, including ascending or descending order on check number, date, or category. Categories can also be defined and assigned to transactions, with statistics available for each category.

When you want to output reports of your transactions, AmiCheck offers three ways to do so depending on what you need.



Juggling your finances is as easy as AmiCheck, the new accounting package.

DATA ON COMMAND

With **MultiFinder** database ($104, ***Data Management and Research***), you can create a file in three easy steps: 1) Enter field names, 2) provide a title/subtitle, 3) select colors . . . and that's it! Editing is a snap as well: You can perform actions with a single keystroke and, with the database's smart editor, field spacing is automatically adjusted as text is entered. The sky's the limit with no fixed limits on the number of characters in any field and the capability to store up to 65,000 records in a database. MultiFinder offers many options, including, sorting, label printing, import and export, and a backup utility. Can't make up your mind? Data Management will let you preview a copy of the database for a minimal fee, which can be applied to your purchase.

LIGHTS, CAMERA . . .MOTIONCLIPS

Imagine flying your logo over Niagra Falls, or using a vintage '50s scene as the backdrop for your 3-D transition. You'll find these images and more than 8,000 other frames of royalty-free stock footage on **MotionClips, General Collection** CD-ROM ($149.95, ***Accadia Electronic Arts/MicroWorks***). You can use the images as moving backgrounds and texture maps or convert the frames to IFFs using an image-processing program. As a bonus the ISO 9660 disc offers 16 static IFF backgrounds. It requires a hard drive.

FROM A(REXX) TO Z(EDREXX)

No more stumbling over cryptic and complex syntax: **ZedRexx** ($35, ***Reality Check***) is an ARexx extension that adds Graphical User Interface (GUI) capabilities with simple, easy-to-use syntax. It also offers multiple-window interfaces, keyboard shortcuts to controls, drag and drop, iconification, transparent handling of all event processing, resource tracking, online help in AmigaGuide format, and more. ZedRexx requires AmigaDOS 2.04 or later

NEW NEXUS LINE

Optonica is building a new range of low-cost, high-quality productivity tools under the Nexus banner beginning with **Info-Nexus** and **Data-Nexus**.

Info-Nexus, a file-and-data-management program, features split-screen source directories, all the standard disk operations (including copy, move, rename, clone, delete), search options, print control, and more. It also supports Envoy networks for quick file send and remote screen grabbing. Info-Nexus offers all this with a user-friendly "pop-and-roll" interface and online help.

Data-Nexus is a fully-configurable database offering advanced find and filter controls, mail-merge, label printing, and indexing, among other options. Fields can support pictures, animations, sounds, and CDXL video as well as text.

A WORD FROM SOFT-LOGIK

Soft-Logik Publishing is teaming up with the UK's Digita International to bring the popular **Wordworth 3.1** word processor to North American shores. Wordworth 3.1 ($135) features online help, intuitive editing, real-time spell-checking, drag-and-drop editing, and more. It supports PostScript, TrueType, and Compugraphic fonts. What's more, you can load Wordworth documents into Soft-Logik's PageStream desktop publishing program to combine the best of both worlds.

In addition, Soft-Logik is offering Digita's **Datastore** database program ($95). For novice users, Datastore comes complete with templates, online help, and intuitive VCR-style controls. More sophisticated features include mail-merge with Wordworth documents. Technical support in the US for both Digita products will be available through Soft-Logik.

EPSON DRIVER

Now Amiga owners can take advantage of Epson's popular 720-dpi Stylus color inkjet printer with the new printer driver ($44.95) from ***Endicor Technologies***. The driver implements horizontal and vertical whitespace striping, as well as Epson compression mode 2 to minimize the amount of data that must be sent to the printer, thereby improving printing speed. It also supports Epson's optional MicroWeave printing, a distinctive feature that uses overlapping passes to reduce banding. It requires Workbench 1.3 or later.

Overscan is compiled by Ann Record. Send your news and new products to Overscan, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458 or send e-mail to record@dv.com. ■



Prime-Time PD

ON-LINE SOURCES FOR FREELY DISTRIBUTABLE SOFTWARE

After completing my review of Pegger 2.0 (Jan. '95), my mind was on graphics-conversion programs. While I normally opt for a commercial package, numerous freely distributable converters are widely used. Often these single-purpose conversion programs are all that's necessary to get graphics files into the desired format.

Many graphics images you'll find online and in CD-ROM collections appear in GIF, TIFF, and JPEG formats—none of which are considered traditional Amiga formats like IFF or HAM. The graphics-conversion process is often a necessary step if you plan to load these files into paint programs, such as DPaint, or put them to use in other applications that have a limited number of filetype loaders.

PD converters come in a variety of forms, ranging from the single-purpose programs that convert GIF files to IFF format to the multipurpose converters. If you can get by without technical support, ARexx support, network compatibility, and other niceties found in commercial packages, then these PD offerings are the way to go.

Quick-Change Artists

Log into any general computer area, such as one of the many graphicss or photography areas on CompuServe or GEnie, and you'll see that 256-color GIF files appear more frequently than any other graphics. If your applications can't load in GIFs, you should get a copy of Shane R. Monroe's GIF Processor Plus (GPP).

A freeware program, GPP rapidly converts individual GIF files or batches thereof using an intuitive point-and-click interface. There are many options for deleting the source GIFs after conversion, and GPP includes selectable multitasking and a status screen that keeps you informed as to how many GIFs were processed, how many remain to be processed, the average conversion time, and estimated completion time of a particular batch.

IFF2PCXII, by John Shaw, is an old standby that converts IFF files to the popular PCX format used on PC compatibles. While it doesn't seem to work under AmigaDOS 3.0/3.1, it does work well under older versions of the operating system. With either an interlaced or non-interlaced IFF, four buttons allow you to select a file and directory, convert the IFF file, or view it. The process is straightforward, and you're reminded to have a utility such as CrossDOS to transfer the finished file to a PC-formatted disk when done.

One of the lesser-known graphics converters is one that converts C-64 320x200, 16-color Doodle format graphics files to IFF. C-64_2_IFF, by Jim Schwartz, does an admirable job of converting the old Doodle files, even under AmigaDOS 3.x. Another low-profile converter is BMP2ILBM 1.3, a 2.x/3.x, CLI-only utility that converts bitmap graphics files to ILBM format. Written by someone who goes by the initials DRM, this handy program can also display the BMP header and colortable.

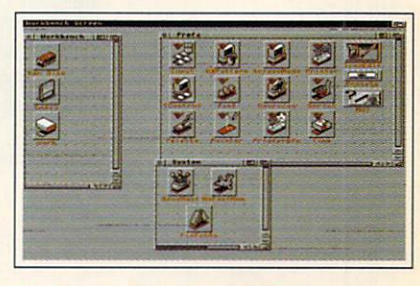
Other good miscellaneous graphics utilities include EDTView 0.5, a small (6.5K) program by Colin Bell that displays IFF, GIF, PCX, BMP, and JPEG files. You can also use EDTView as an image converter, loading in a GIF and saving it as an IFF. Another general-purpose converter is the freeware program TIFFView 1.12, by Bert Wynants. This utility lets you read, view, and print TIFF-formatted files. Furthermore, you can load IFF images into it for viewing, alter the gamma settings of the images, print them, and save them back to disk.

Some "New" Icons

Although it's taking some time for the word to spread, Nicola Salmoria's freeware NewIcons package is arguably the most excitement your Workbench has seen since MagicWB. NewIcons, a revolutionary system patch, enhances the appearance of AmigaDOS 2.0 or later and improves system functionality by installing custom icons, including those of the 256-color variety on AGA machines.

Once the standard Commodore installer puts all the pieces in place, you'll realize NewIcons is more than just a collection of fancy icons. Besides replacing existing Workbench icons, dozens of default icons—drawn by artist Roger McVey—automatically appear for specific filetypes that normally lack icons. These include various types such as IFF, JPEG, AmigaGuide, SMUS, and so on. If you click on one of these icons, the appropriate user-defined default tool automatically appears in the "Execute Command" field.

NewIcons also lets you convert brushes into icons, and it provides unique icons for RAM Disks and CD-ROMs that lack them. A comprehensive set of utilities allows you to manipulate the newly installed icons and create custom ones for older files unaffected by the installation of NewIcons. The program also installs compressed images of the new icons into Tooltype lines of the .info files. Watch for upcoming improvements and accessories to this exciting icon system.



NewIcons gives the old Workbench a new look.

Network Voice Numbers

BIX
800/695-4882
617/354-4137

CompuServe
614/457-0802
800/848-8199

Delphi
800/695-4005

GEnie
800/638-9636

Portal
408/973-9111
800/433-6444 ■

*Write to "Prime-Time PD" c/o **AmigaWorld** Editorial, 80 Elm St., Peterborough, NH 03458; or contact Tim through the Internet at "twalsh@bix.com".*

REVIE

Interfaces for expanding the storage capabilities of the A1200 and A600.

DataFlyer XDS; DataFlyer SCSI+

Expansion Systems; XDS, $99.95; SCSI+, $129.95

Alfa Data CD1200

Alfa Data, $99.95

A600/A1200
2.x/3.x compatible.
Hard-drive installable.
Not copy protected.
Accelerator compatible.
Installation: Easy.
Minimum system: A600 or A1200.
Recommended system: Same as minimum.

Attired in a compact case without any expansion slots or drive bays, the A1200 is hardly an expandable machine—or is it? Expansion Systems' recently introduced DataFlyer XDS and SCSI+ and Alfa Data's CD1200 greatly enhance the storage capacity of the A1200 and its compact A600 sibling.

DataFlyer XDS

While the IDE controllers built into the A600 and A1200 support two hard drives, there's room for only one drive in each machine's tight confines. Furthermore, only downsized 2.5-inch laptop drives—which are expensive and limited in storage capacity—will fit inside these computers.

The DataFlyer XDS (eXpansion Drive System) solves this housing dilemma. An innovative system consisting of an external case and a special drive cable, the XDS lets you add a relatively inexpensive 3.5-inch IDE hard drive externally to your A1200 or A600. (The Maxtor 546MB drive I used costs only $299—less than a 200MB 2.5-inch internal IDE drive.)

The specially designed cable included with the XDS is needed because the 3.5-inch drives use a 40-pin IDE connector instead of the 44-pin connectors used by laptop drives. The cable also taps into the Amiga's floppy-drive power connector to run the external drive. Installation involves opening your computer's case, plugging the cable into the Amiga's IDE connector (a pass-through lets you continue to use an internal IDE drive) and into another spot on the motherboard, mounting your drive in the XDS's stylish case, and attaching the cable to the connector on the case.

Because Commodore's HDToolBox was not shipped with all A600s and A1200s, Expansion Systems also includes its own formatting and partitioning software. Once installed, the drive worked as transparently as the Amiga's internal hard drive—and quite a bit faster. You can even boot off an XDS-mounted drive, and a pass-through connector lets you attach a second drive if you don't have an internal hard disk.

A DIN connector lets you use an external power supply if your Amiga doesn't have enough juice in reserve to power the hard drive. If your A1200 has an accelerator card and the stock power supply, you'll probably need more power. One usage tip: Make sure to set the MaxTransfer value for every partition to 0x1ffe0; most drives cannot handle larger values and will scramble files larger than 128K if you don't do this.



Alfa Data's CD1200 CD-ROM controller for the A1200 and A600.

To locate the vendors of the products reviewed, see the "Manufacturers'/Distributors' Addresses" list on p. 61.

W S

DataFlyer SCSI+

Right at the starting gate, the IDE interface has two disadvantages: It supports only hard drives, and a maximum of two devices. If you're looking for more flexibility, check out the DataFlyer SCSI+. This is a tiny adapter board containing a SCSI controller chip that plugs into the IDE connector on your A600's or A1200's motherboard. A pass-through lets it work with both an internal IDE drive and the XDS.

At the right-rear corner of the A1200 is a knockout opening where you can install a standard 25-pin SCSI connector, running the cable under the internal disk drive and over to the SCSI+; on an A600, you have to run the ribbon cable out the back of the case. Installation is fairly easy, but I did have problems with the SCSI+ board becoming partially unseated due to pressure from the keyboard above it.

The SCSI+ supports up to five SCSI devices. I tested the board with an external Quantum ELS170 hard drive, a Bernoulli 150 removable hard disk, and a Mediavision single-speed CD-ROM drive. All worked well with the SCSI+ controller once I removed the CD-ROM drive from the list of devices mounted by the DFMount command (the controller was trying to mount it as a hard drive). The SCSI+ doesn't include a CD-ROM device driver, but it works fine with the public-domain AmiCDROM file system, and should work with commercial drivers as well.

The SCSI+ isn't as fast as some dedicated SCSI controllers that plug into the A1200's trap-door expansion slot, but it leaves that slot free for an accelerator card. Unfortunately, the controller isn't capable of autobooting. With an IDE hard drive, that's not a problem, but if your only drives are on the SCSI bus, you'll have to boot from your floppy drive. There's also a version of the SCSI+ for the Amiga 4000, priced at $149.95.

CD1200

If you're happy with your current hard drive and you want to add a CD-ROM drive, you might consider Alfa Data's CD1200. A large plastic box that plugs into the PCMCIA connector on the Amiga 600 and 1200, the CD1200 allows you to connect an inexpensive Mitsumi single- or double-speed CD-ROM drive, but it will not work with other brands.

I had to scrape up a case and power supply for the internal Mitsumi drive I tested. Once that was done, it was a simple matter to plug the CD1200 into the Amiga's PCMCIA port and install the device driver. The drive appeared as CD0: and could be accessed like any other Amiga device.

The CD-ROM file system included with the CD1200 allows you to read the standard ISO9660 discs used by CDTV, CD32, and PC systems. I substituted the public-domain AmiCDROM system and could then access a Macintosh PostScript font disc with no problems.

The device driver and file system make no attempt to emulate CDTV- and CD32-specific features, so about 50% of CD32 titles work on the A1200. Liberation and Grolier's Encyclopedia worked fine, while others that apparently use CD32-specific routines (such as Alfred Chicken and Microcosm) locked up the system.

The CD1200 is glitch-free and may be the least expensive method for adding a CD-ROM drive to your A1200. If you're comfortable about opening your machine, though, you'll find that the extra investment in the DataFlyer SCSI+ provides equivalent CD-ROM capabilities and increased expansion capacity.

— Denny Atkin ►

Expansion Systems' XDS (top) is designed for the A1200 and the almost-forgotten A600. The SCSI+ (bottom) comes in both A600/-A1200 and A4000 configurations.

Personal finance-management software.

Checks & Balances

AmiSoft, $44.95

All Amigas.
2.x/3.x compatible.
Hard-drive installable.
Not copy protected.
Accelerator compatible.

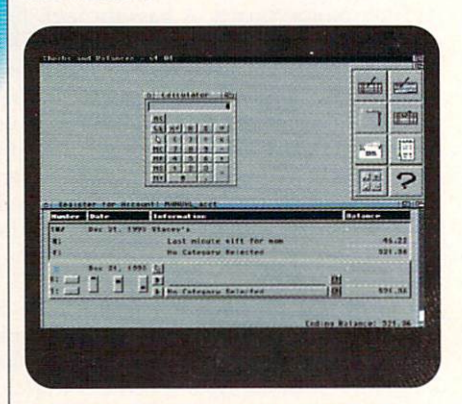
Minimum system: 1MB RAM, AmigaDOS 2.04 or later.
Recommended system: Preferences printer, hard drive.

Using computer programs to balance your checkbook is often more time-consuming than grabbing a nearby calculator. The right approach to these types of programs is to have them entirely replace your existing checkbook and register. AmiSoft's Checks & Balances not only does just that, but also replaces the calculator in the process.

Checks the Balances

Supplied on a single disk, Checks & Balances (C&B) displays eight icons that represent the various functions of the program. Each of these icons opens a window with a mouseclick or press of a function key, and, like other Amiga windows, these come with the usual gadgets that allow you to adjust their size and position.

Opening the Register window lets you enter standard information such as date, check number, amount, and payee. Also shown are tax deductibility, whether or not the check has cleared your bank, and a running account balance. You also enter deposits and ATM transactions in this window.



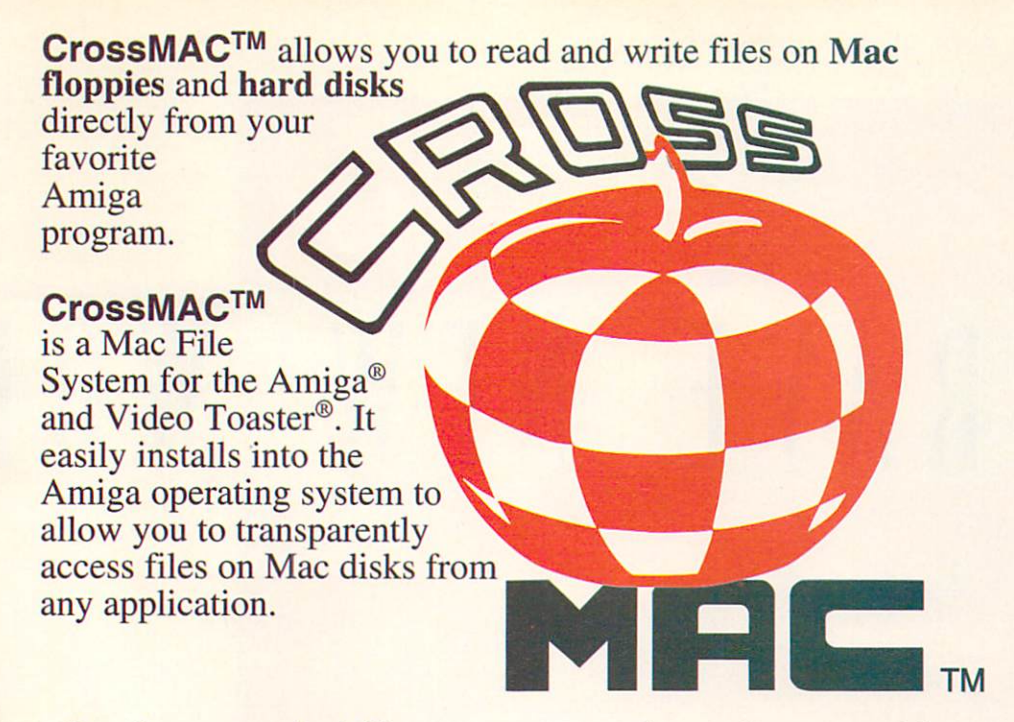
Checks & Balances makes managing your checkbook accurate and easy.

If you have a printer attached, you can use C&B's Check window to print your checks on custom forms that are available for both laser and dot-matrix printers. (A discount coupon from one form supplier is included with the package.) The Check window also displays either a facsimile of a single check as you fill in payee and amount information, or an abbreviated display of several checks. This latter option includes indicators that reveal whether a check has already been printed or is currently selected for printing.

When you receive your bank statement, open the Reconciliation window. This lists all of the transactions that have been entered but not previously reconciled. You click on every transaction your statement lists and enter the balance as shown on the statement. C&B

Continued on p. 38.

CrossMAC™ allows you to read and write files on **Mac floppies** and **hard disks** directly from your favorite Amiga program.



CrossMAC™ is a Mac File System for the Amiga® and Video Toaster®. It easily installs into the Amiga operating system to allow you to transparently access files on Mac disks from any application.

Our feature-packed file system out-performs the competition.

Compare:

Feature	CrossMAC	MaxDOS™
Mac 1.44M (high density) floppies	Yes	Yes*
Mac 800K (low density) floppies	Yes¶	No
Amax and Emplant 800K floppies	Yes	No
Amax and Emplant partitions	Yes	Yes
Mac hard drives	Yes	Yes
Shows data and resource 'fork'	Yes	Yes
Displays Mac icons on Workbench	Yes	No
Mac text translation option	Yes	Yes
Preserves original Mac Finder	Yes	No
Transparent MacBinary file support	Yes	No
Resource Extractor utility	Yes	No
Mac file salvage utility	Yes	No
Network friendly	Yes	Yes
Customer BBS support	Yes	No
5+ years of file system design experience	Yes	No

The **CrossMAC** tested here is Version 1.01. The **MaxDOS** tested here is Version 2.0.
¶ Requires either:
AMax II Plus card or AMax IV card and standard Amiga drive
or AMax II cartridge with Mac floppy drive,
or AMIA™ cartridge with Mac floppy drive.
* Requires our device driver (also supplied with Amiga OS 2.1 & 3.1)

Ask about our **"CrossFS Pro Pack"**. It combines **CrossMAC** and **CrossDOS 5 Plus** for one low price.

File System Features:

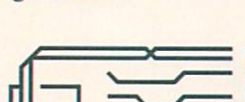
- Read/write Mac low* and high** density floppies (including Amax and Emplant disks).
- Read/write Mac hard drives (including SyQuest™ and Bernoulli™ cartridges and Amax™ and Emplant™ partitions).
- Read Mac HFS CD-ROMs.
- Data and Resource 'forks' as separate files.
- Mac icons displayed under Workbench.
- Full Mac file names.
- MacBinary file support.
- Optional Amiga↔Mac character translation.

* Requires either an Amax cartridge and Mac 800K drive **or** an Amax II plus/Amax IV card.
** Requires an Amiga-compatible high density drive. [***We have a limited supply of these drives for sale***].

File System Support Utilities:

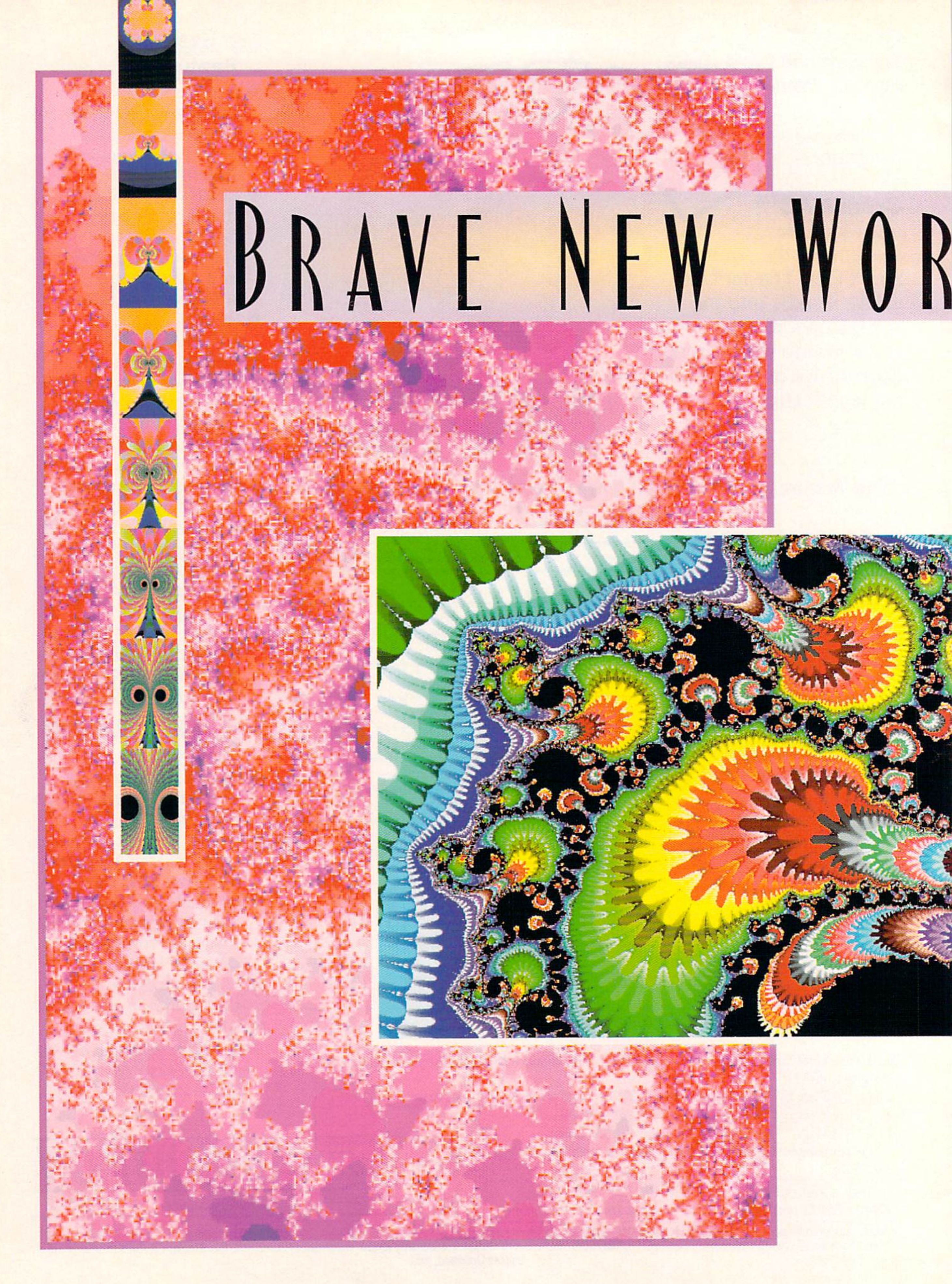
- Format, diskcopy and check the integrity of Mac disks.
- File salvation program to try to recover files from a corrupt Mac disk.
- Resource extractor to view or copy individual resources from a Mac resource 'fork'.
- Easy hard drive configuration program.
- Other valuable utilities.

***Requirements**: Any Amiga with at least 1 M of RAM and AmigaDOS 2.0 or higher.*



CONSULTRON
8959 Ridge Rd
Plymouth, MI 48170-3213
Technical Support
(313) 459-7271

Amiga: registered trademark of Commodore-Amiga, Inc. **SyQuest:** registered trademark of SyQuest Technologies., Inc. **Bernoulli:** registered trademark of IOMega Corp. **Video Toaster:** registered trademark of NewTek, Inc. **MaxDOS:** trademark of Media4 Productions. **Amax:** trademark of ReadySoft, Inc. **Emplant & AMIA:** trademark of Utilities Unlimited, Inc.



BRAVE NEW WOR

LDS OF FRACTAL IMAGERY





A product of recent higher mathematics, the Mandelbrot Set and other fractal equations offer uniquely dramatic and colorful graphics possibilities for Amiga artists, animators, videographers, and general enthusiasts. Explore the fascinating world of fractal imagery and sample some exciting Amiga fractal-generation software.

BY MARK R. BROWN

IMAGINE, IF YOU will, a world every bit as complex, colorful, and detailed as our own. This world has seas and coastlines and bays, mountains and lakes and rivers. It has an infinite number of features, some as broad as continents and some as minute as raindrops. Now imagine that this entire world can be described by a simple, two-term mathematical formula. Such a world really does exist. It is called the Mandelbrot Set.

GEOMETRY AND NATURE

Most man-made objects can be easily described in mathematical terms. A ball is a sphere, a door is a rectangular solid, and even a fairly complex object like an automobile is simply a combination of geometric lines, planes, and curves. All can be defined by simple mathematical formulas.

But natural objects are harder to define. What is the formula for a leaf, or a mountain, or a cloud? in fact, only twenty years ago, such a question would have been regarded as ludicrous—But that was before the development of fractal mathematics.

Fractals are, themselves, difficult to describe. It has been said that fractals describe objects that display "regular irregularity" or "self-similarity." Fractals are nonlinear, recursive, and possess a "fractional dimension." But what does all this really mean?

Figure 1. Fern created by MathVISION (Seven Seas Software).

Consider a fern. Each frond is composed of smaller "fronds" that resemble the fern as a whole. Looking even closer, you'll see that, at every level, a part of the fern resembles the entire plant. A fern is "self-similar." ►

FRACTAL IMAGES BY MARK R. BROWN, D.L. RICHARDSON AND DANIEL WOLF

Fractal mathematics can be used to describe such self-similar objects. You can use a relatively simple fractal formula to create an image of a fern that is indistinguishable from the real thing.

The same is true of many natural objects. Images of coastlines, mountains, trees, clouds, and many other items in nature can be generated using fractal mathematics. The natural-looking images in Figures 1 and 2 were both generated by an Amiga running various fractal image-generation programs.

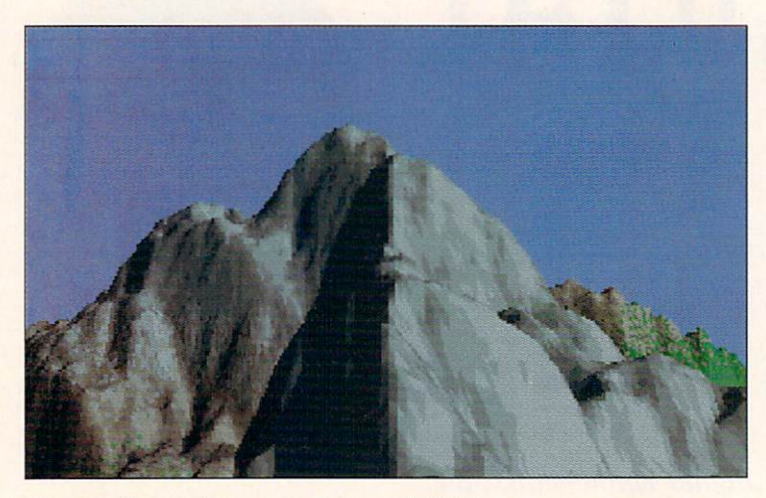


Figure 2. Mountain scene by Scenery (FF155).

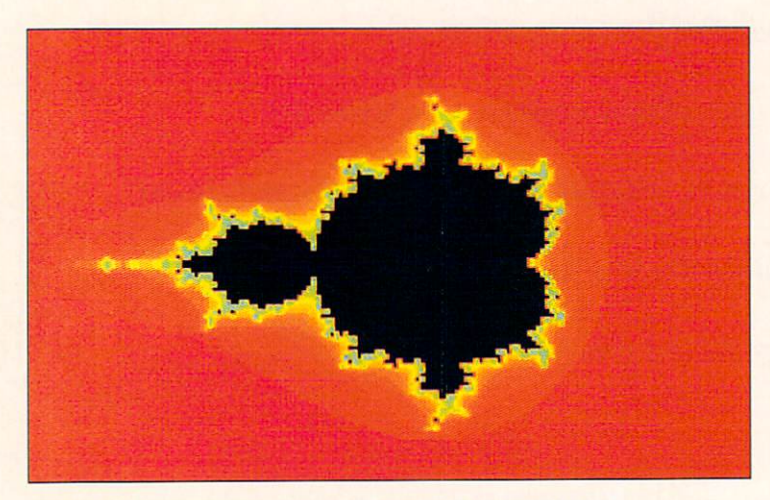


Figure 3. A MathVISION view of the entire Mandelbrot set.

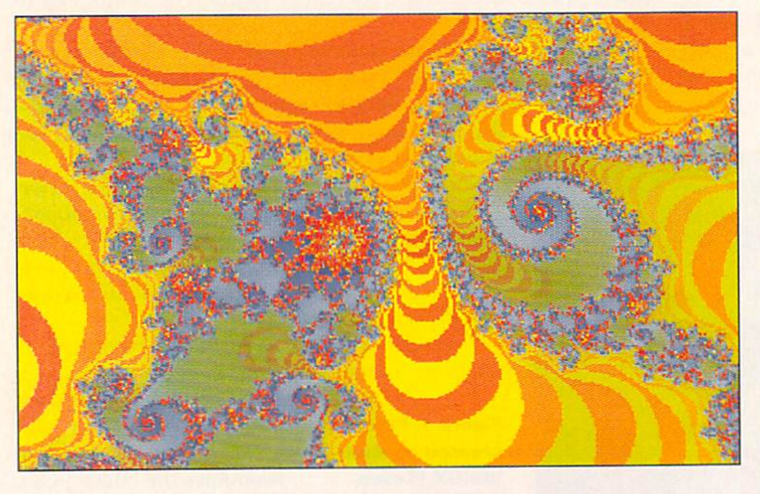


Figure 4. Tight Mandelbrot zoom with banded coloration.

Mandelbrot

Benoit Mandelbrot, a Research Fellow with IBM, coined the term "fractal" in 1975 to describe a curious graph he had been working with on an IBM mainframe. He was running numbers through a recursive formula in the complex-number plane, and it was generating a very curious image—one that looked like a big, black bug. Somewhat mysteriously, when he "zoomed in" on a part of the graph, the magnified images of its parts often resembled the entire graph.

The formula he was using was quite simple: $z \rightarrow z^2 + c$, where z and c are both "complex numbers." (See the sidebar "What Are Complex Numbers?" for an explanation of this phenomenon.) He first picked a value for c and set $z = 0$. Then he substituted the result of the calculation back for z in the equation and calculated again. He repeated the process for a set number of iterations. He had his computer plot the results on a rectangular grid with the real-number components along the x-axis and the imaginary components along the y-axis. If, after the specified number of iterations ran out, the result had not zoomed off towards infinity, he colored the point on his graph black. If it did, he didn't color the point at all. (A later refinement colored each nonblack coordinate a different hue according to how many iterations it took for that point's calculation to exceed an absolute value of 2, a sure indication it was headed for infinity.) Running his equation for complex number values between $-2 + 1.25i$ and $.5 - 1.25i$ resulted in Mandelbrot's curious bug-shaped graph.

This graph, now known as the Mandelbrot Set (see Figure 3), has since become one of the most-studied objects in modern mathematics. If you've been around computers very long, you've probably seen these colorful Mandelbrot Set images (as in Figure 4)—even if you were unsure exactly what it was you were seeing.

Exploring the Mandelbrot Set

Given the graphics capabilities and computing power of the Amiga, it is not surprising that there are a number of programs, both commercial and freely distributable, that allow you to do your own exploring in the Mandelbrot Set. But before you set out, you should know that there are several factors that affect the images you will create with these programs.

1. Zooming: All of the interesting Mandelbrot patterns are located on the edge of the Mandelbrot Set. You can "zoom in" on small regions of the edge by limiting the range of numbers you explore and by using more digits of precision (see Figure 5 on p. 15). For example, you might limit your view to the rectangular area enclosed by the complex numbers between $(-1 - 0.25i)$ and $(-.75 - .5i)$. The effect is like zooming in with a telescope on the earth from space. The best way to zoom a Mandelbrot image is with some sort of direct point-and-click or drag-a-rectangle mouse control. The most excruciating is to enter the numbers manually. Fortunately, the latter method is almost entirely extinct, though it was often the only way to zoom in older programs. This capability is actu-

ally useful if you want to re-create images that have been generated by others—the "coordinates" are usually published along with Mandelbrot images.

2. *Iterations*: By increasing the number of iterations, more and more detail can be revealed—apparently, an infinite amount of detail. All of the black areas of the Mandelbrot Set are connected, though you may not see the connecting threads for some areas until you have run a great many iterations. The more iterations, the slower the image will generate. No matter how powerful an Amiga you own, you'll want to keep the iteration count low as you explore, and increase it only when you've found an interesting area you want to see in greater detail.

3. *Color*: By coloring the points that are in the Mandelbrot set black, as Mandelbrot himself did, and by coloring other points in different colors to indicate how many iterations they take to "fly away" to infinity, extremely colorful and fascinating patterns can be created. The look and feel of any area you examine will vary a great deal depending on the color scheme you choose (see Figure 6). Alternate colors for a dramatic striped effect; choose a range of related colors for smooth, organic images; or pick a colorful spectrum for a wild and crazy look. Don't overlook the drama that a monochrome or grayscale scheme can give your images.

4. *Animation*: There are two ways to give a fractal image motion. One is to cycle the colors. In most Mandelbrot images, color cycling resembles the flow of a river. As it follows an image's curves, color cycling helps to accentuate the structure of the image. The effect is hypnotic. The second way to add motion is to create multiple images and combine them into an animation. This might involve simply panning across an area of the Mandelbrot Set, but more often it means zooming in or out, perhaps at the same time increasing the number of iterations to add detail. Combining dozens of zoomed images into a "fly-in" sequence is extremely dramatic, emphasizing the Mandelbrot Set's resemblance to natural landscapes. Some programs will create a sequence of images automatically; with others, you'll have to step-and-save manually. ►

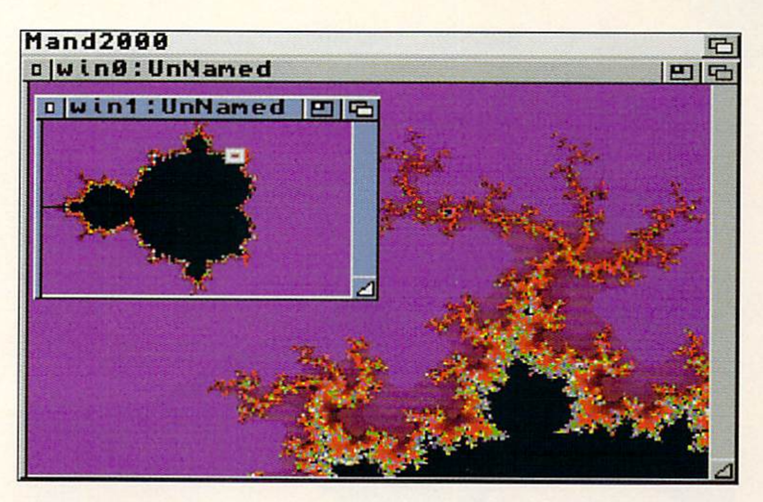


Figure 5. Mand2000 shows the location of a zoom window.

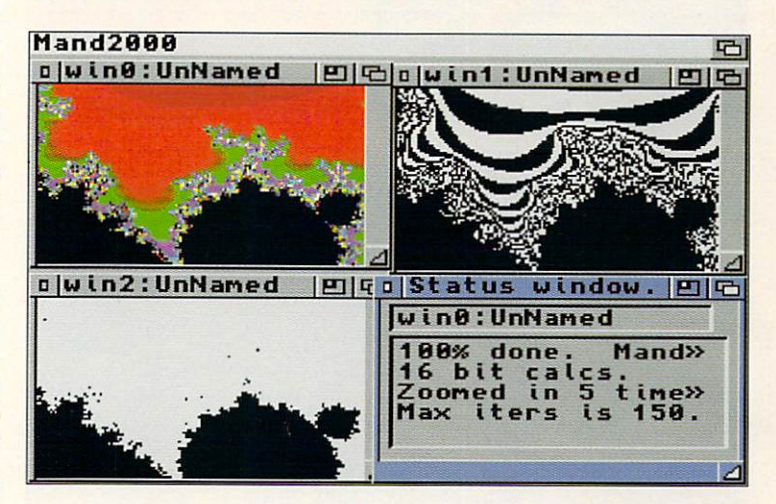
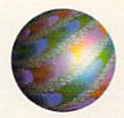
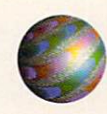


Figure 6. The same image with three very different color schemes.

What Are Complex Numbers?



COMPLEX NUMBERS ARE composed of two parts, one "real" and one "imaginary."

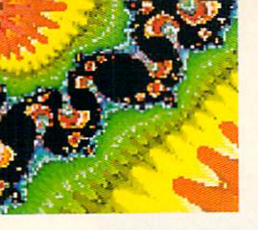
Real numbers are the ordinary numbers we use every day—positive and negative, whole and fractional. In considering what follows, remember that the square of any real number (positive or negative) is positive; e.g., 3^2 and $(-3)^2$ both equal 9. Therefore, 9 has two square roots: 3 and –3.

Imaginary numbers are not imaginary at all; they are just as real as "real" numbers, but carry an unfortunate name that was given to them by mathematicians when they were a new, unnerving concept. Imaginary numbers were invented to answer the question, "What is the square root of a negative number?" (the question arising from the then puzzling solution of the quadratic equation $x^2 + 1 = 0$). The base number of the imaginary-number set is called "i" and is defined as "the square root of –1." In other words, $i^2 = -1$. The square root of –4 is expressed as 2i, since 2^2 is 4 and i^2 is –1. And so on.

A complex number consists of a real part and an imaginary part—for example, "4 + 3i." The real part is "4" and the imaginary part is "3i." This number cannot be further reduced or simplified.

To multiply two complex numbers, you cross-multiply algebraically. For example, consider this problem: (4 + 3i)*(2 + 2i). First, you multiply the two real parts: 4*2 = 8. Then you multiply the two imaginary parts: $3i*2i = 6i^2 = -6$. This produces a real, negative number because you multiply one "i" by another (giving you –1). Finally, you cross-multiply the real part of each complex number with the imaginary part of the other: 4*2i = 8i; 3i*2 = 6i. Then add all the similar terms: 8 + (–6) + 8i + 6i = 2 + 14i. This answer is, itself, a complex number; it cannot be further reduced. □ *—MB*





5. Resolution: Most Amiga fractal programs let you work with a wide variety of screen resolutions and color depths. You will probably want to work with lower-resolution screens and a limited color set for general exploration, since this results in greater speed. When you are ready to save images, you might want to select higher screen resolutions and more colors.

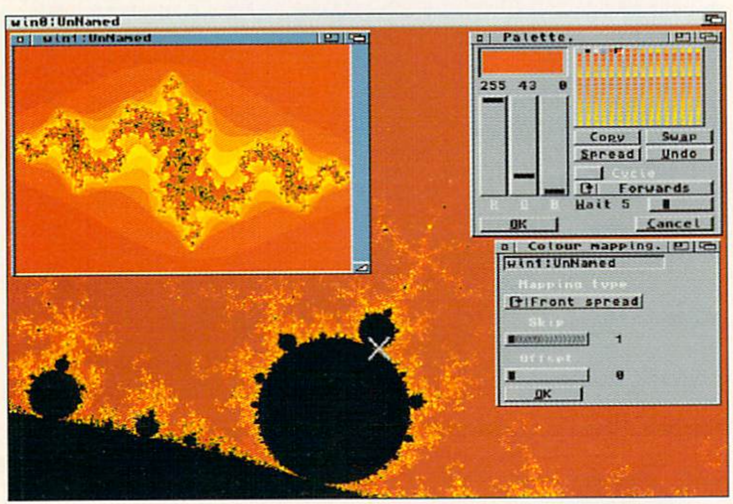


Figure 7. "X" marks the spot on the Mandelbrot set that generates this colorful Julia set. Also shown is Mand2000's color-palette control window.

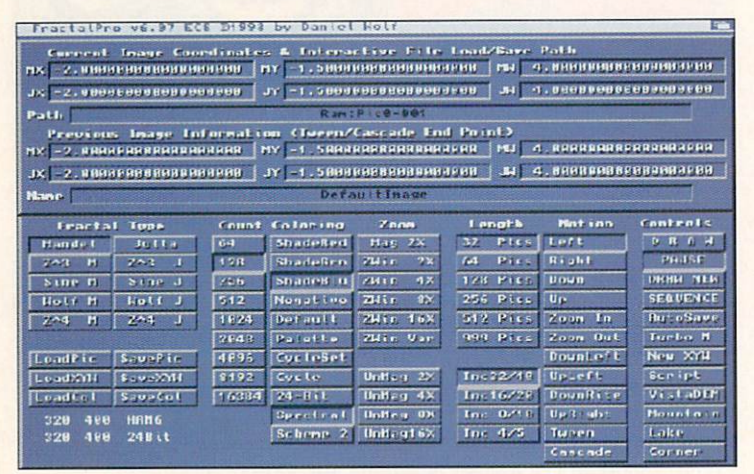


Figure 8. FractalPro's control panel.



Figure 9. Mand2000 generates the classic Mandelbrot image from the cover of the August 1985 issue of *Scientific American* that launched "Mandelbrot Mania."

6. Equations: Mandelbrot's equation is not the only fractal equation in existence. There are literally an infinite number. Many of the programs mentioned in this article are capable of generating fascinating—if less familiar—images based on other fractal equations. The Julia Set is particularly interesting (see Figure 7). Every point on the complex plane generates a unique Julia Set. Points that lie within the Mandelbrot Set generate connected Julia Sets; points outside the Mandelbrot Set generate disjunct Julia Sets. Some Mandelbrot programs allow you to generate a point's associated Julia Set. Some even allow you to scan across the Mandelbrot Set, generating a "Julia animation" as you go. The results are quite dramatic, reminiscent of the opening and closing of the wormhole on TV's *Star Trek—Deep Space Nine*.

Fractal Software

NOW THAT YOU know a little about the nature of fractal images, let's survey some of the top Amiga fractal-generation software. (To contact the developers of these programs, consult the "Manufacturers'/Distributors' Addresses" list on p. 61.) Also, a sampling of some of the many PD/shareware Amiga fractal programs—with brief descriptions and Fred Fish disk numbers—is contained in the sidebar "Fractals on Fish."

FractalPro v6.07

MegageM's **FractalPro** ($149.95) has been around in one form or another almost as long as the Amiga, it seems. Now at version 6, this latest incarnation includes support for AGA-equipped Amigas with more colors and higher screen resolutions. FractalPro has the ability to compute ten different fractal equations, not just the Mandelbrot Set, and can create twelve types of animation sequences. It can also save DEM (Digital Elevation Map) files, which you can then load into VistaPro (Virtual Reality Labs) or Scenery Animator (Natural Graphics) to create 3-D scenes based on fractal data.

MegageM claims that Fractal Pro has the ability to magnify more than 2000 trillion times, although I'd hate to have to wait for an image to generate at that level of magnification. Mouse, menu, and ARexx support, as well as a fully loaded control screen, give Fractal Pro users a variety of control choices (see Figure 8). The program requires an FPU (or 68040) and one meg of RAM.

For more information on this program, see the full review (Oct. '93, p. 19).

MegageM also offers the **FractalPro Image Library**, Vol. 1 ($59.95)—a CD-ROM collection of more than 350 fractal images plus several dozen VistaPro DEM files of fractal objects.

Mand2000

Cygnus Software's best-known product is the excellent text editor, CygnusEd, which is sold by Elastic Reality/-

ASDG. But for years, Cygnus Software's true labor of love has been the Mandelbrot Set generator now known as **Mand2000** (see Figure 9).

This shareware program is an excellent example of what programs on the Amiga should look like. It has a wonderful 3-D user interface that makes full use of the Amiga's mouse, menus, windows, gadgets, and requesters. There is also built-in help, although everything is so intuitive you'll probably never need it.

You can generate multiple images in multiple windows, and the images can be created in a multiple-pass format that lets you see results almost immediately. Have an older Amiga? No problem. Size down the windows a bit and you can easily keep up with the big boys. But Mand2000 also takes advantage of the Amiga's multitasking abilities by letting you create multiple images at the same time.

Mand2000 is loaded with unique features. It produces four different types of animation, and can even create a super-fast proprietary type of animation that is played back with Cygnus's own TweenPlayer. Not surprisingly, Mand2000 works well with ASDG's AD Pro, which has its own loader for "Fractal2000" files, which can be used to generate 24-bit Mandelbrot images. Mand2000 also supports many Amiga 24-bit boards.

There are lots of different ways you can explore fractals using Mand2000. Its "click-and-zoom" feature has to be seen to be believed—it's like dive-bombing the Mandelbrot Set. There is a "demo mode" that will show you some of the best parts of the set, which you can also select directly from a pull-down menu. ARexx support is built in, and many sample ARexx programs are included. These can even be linked to the User menu for quick and easy access. If you're more the videogame type, you can even plug in a joystick and "drive" around the Mandelbrot Set!

FRACTALS ON FISH






THERE ARE A multitude of PD and shareware fractal programs available for the Amiga—probably more than for any other personal computer. The following is a list of 34 of the most popular and accessible Amiga fractal programs. Some generate only the Mandelbrot set; others add features like animation; and still others generate different types of fractal images. All are available on Fred Fish disks. You can also look for them online on Aminet, on commercial online services, or on an Amiga BBS near you.

PROGRAM	FISH #	DESCRIPTION
ApfelKiste	566	Fast, simple Mandelbrot program from Germany
CloudsAGA	981	Fractal cloud generator with AGA support
CPlot	392	Graphs linear functions in two dimensions
CPM	303	Computes 3-D fractals via Continous Potential Method
DEM	303	Computes B&W fractals via Distance Estimator Method
FastGro	188	Simulates Diffusion-Limited Aggregation
FCS	465	Iterated Fractal Construction Set
FFEX	549	Feature-packed fractal generator
FracBlank	687	A commodities fractal screen blanker
FracGen	188	Generates ferns, gaskets, etc. from seeds
FractalLab	391	Versatile fractal image generator
Fractals	371	Mandelbrot, Julia, Newton, and other complex formulas
IceFrac	303	Computes via Diffusion Limited Aggregation
IFSLab	696	Iterated Function System fractal generator
Landscape	554	A fractal scenery generator written in AMOS
Lyapunovia	877	Generates images based on Lyapunov Space
MAK	522	Mandelbrot Adventure Kit
Mand2000D	947	Demo version of a revolutionary fractal program
MandAnim	461	Mandelbrot animation program
MandelBlitz	387	Fast Mandelbrot generator with many options
MandelMountains	383	Renders 3-D Mandelbrot zooms
MandelPAUG	452	Latest MandFXP version with online help, many features
MandelSquare	835	Unique method Mandelbrot generator with animation
MandelVroom	215	Mandelbrot/Julia generator in assembly
MapTrix	853	A texture map/backdrop generator featuring fractals
Plasma	779	A plasma-cloud generator for AGA machines
PolySys	389	The 0L-system described in 'Science of Fractal Images'
Scenery	155	PD precursor to the commercial Scene Generator
Slicer	836	Creates abstract art based on mathematical functions
SMan	447	Mandelbrots with FPU support, etc.
Terrain3D	94	Early Amiga PD 3-D fractal scene generator
TreeGrow	814	Generates quasifractal trees or plants
TurboMandel	302	Fast Mandelbrot program, with 3-D, etc.
ZPlot	389	Graphs complex number formulas, including Mandel/Julia □



There are many other features—"too many to mention," as they say. You can try out the freely distributable Mand2000 demo and find out more for yourself. It is available on Fish #947, on Aminet, and on other BBSs and PD disk collections. But once you see it, you'll want to buy the commercial version. I guarantee it's the most fun you'll ever have for $44.95, ppd.

MathVISION 2.4

The original name of **MathVISION** ($223, ***Seven Seas Software***) was Doug's Math Aquarium, which I always thought was extremely descriptive, because MathVISION is not just a Mandelbrot Set exploration program—it's a mathematics exploration program. As an aquarium is for fish, MathVISION is for math.

Oh, it will graph the Mandelbrot Set, sure, but it will also create colorful, dynamic displays based on just about any mathematical formula—or set of mathematical formulas—you can come up with. There are faster Mandelbrot Set programs, if that's all you're interested in. But MathVISION's strength is its versatility.

The program comes with more example formulas than you could play with in a month. There's an optimized Mandelbrot function, of course. There are also fractal functions to generate natural objects, like ferns, as well as a universe of traditional math formulas and specialized formulas created just for MathVISION. The built-in function library lets you easily create your own formulas, as well.

MathVISION's versatility also makes it a bit scary. It can take time to get into MathVISION and understand what you're doing, but once you do, using it may become a genuine obsession. To start with, you can simply load the examples and generate images. Play with the formulas. Read the manual. You'll find out that MathVISION is really a research-quality tool masquerading as a fun graphics toy. You can do a lot with this program, from investigating the Mandelbrot Set to processing digitized images. If you're serious about mathematical exploration on the Amiga, it's the perfect tool. (For a full review, see Mar. '94, p. 19.)

FractInt 2.0

A port of a freely distributable MS-DOS fractal-generation program, **FractInt** suffers from lack of "Amigatization." But it more than makes up for its shortcomings in its versatility and cross-platform compatibility.

A huge data file containing hundreds of formulas comes with the program. Of course, it will do the Mandelbrot Set, but it will do so much more that the Mandelbrot Set seems almost an afterthought.

The latest version, 2.0, includes an MUI button-based interface that adds at least a modicum of Amiga "look and feel." The screen requester is the standard one used by most newer Amiga programs, and it allows you to select all Amiga screen modes, including AGA. But FractInt still betrays its MS-DOS origins in many ways. For example, it saves screens in GIF, not IFF, format.

Still, the images it creates are excellent, it has many options, and it is compatible with the MS-DOS version. It is also gaining a number of Amiga fans, and future versions are bound to contain more Amiga-like features. If you want to get into fractals for free, it's an excellent choice. FractInt is available for download from Aminet. It should be available from other freely distributable software sources such as BBSs and disk collections, as well.

Fractals are fascinating on many levels. You can spend a great deal of time just generating pretty fractal pictures. You can spend even more studying the mathematics underlying the images. Fortunately, the Amiga is amply supplied with the tools to allow you to do both. ■

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Fractals Bibliography

ADDITIONAL INFORMATION ABOUT fractals in general and the Mandelbrot Set in particular can be obtained from a surprisingly large and growing variety of resources. The following were used extensively in the creation of this article. Others can be found by inquiring online or at your local library. Be sure to check out the annual indexes of *Scientific American*; *SA* has published a great many articles on the subject over the last decade, beginning with the excellent article that kicked off "Mandelbrot Mania" in August, 1985 (see Figure 9).

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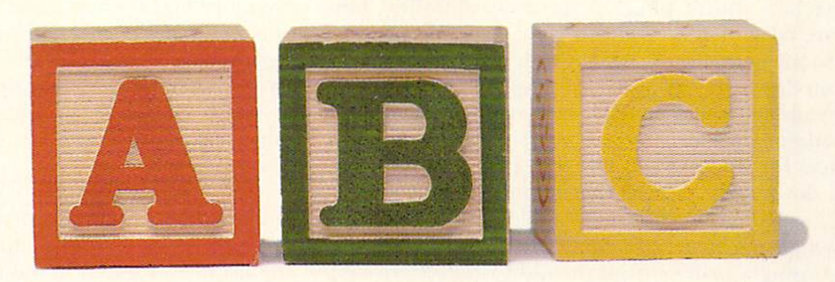
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NEWSLETTER

***Amygdala*, $25/yr (no credit cards) plus postage ($3.20 for US subscribers). Published 10x/yr. PO Box 219, San Cristobal NM 87564.** ☐

The



TROUBLESHOOTER'S GUIDE TO



While there are dozens of ways you and your printer can get into trouble, learning the three basic ingredients of proper printing will make solving these problems as easy as ABC.

IF LIFE WERE fair, every time you selected the Print item from a program menu, your printer would produce perfect output. As every computer owner knows, however, it just doesn't work that way. Who among us hasn't had the thrill of buying a new printer, hooking it up, and getting page after page of gibberish—or worse still, the dreaded "Printer Trouble" requester? Few printer manufacturers have experience with the Amiga, so their "help lines" are of little use. But once you become familiar with three basic ingredients of proper printing, you'll find that diagnosing and fixing a printer problem is as easy as ABC. These ingredients are (A) the proper hardware connection, (B) the right language to communicate with your printer (software drivers), and (C) setting your applications programs correctly.

 THE HARDWARE CONNECTION

A PRINTER CABLE connects your computer to your printer. Since the cable doesn't come with either the printer or the computer, many first-time users don't know what kind to get. In practice, however, this is almost never a problem. The overwhelming majority of printers use a standard Centronics parallel printer interface with a large, D-shaped 36-pin connector, while almost every Amiga model has a standard printer port with a female DB-25 connector on it. As a result, about 99% of the time you can use a standard parallel printer cable, the same kind used on the IBM PC system.

The sole computer exception to this rule is the A1000 which has a male, instead of female, DB-25 connector on the printer port. You cannot just use a simple adapter and a standard cable with the A1000, however, because the port itself sends power down one of the wires, and this could damage the printer. Therefore, if you have an Amiga 1000, be sure to get a printer cable especially designed for your computer.

There are also a few types of printers that don't use the standard connector. For example, Apple printers, such as the Apple Imagewriter, use a serial connection, as do printers for the Commodore 64 and 128. Some printers designed for use with dedicated computer terminals also use a serial interface. While you can use a serial printer with your Amiga, it isn't easy. First, you have to find the right cable. Many serial printers use a standard DB-25 cable that looks like the connector used with a modem, but in most cases a simple modem cable won't work because the printer ports are wired like those on a computer, not a modem. This means you have to use a null modem cable, the same kind used to connect the serial ports of two computers.

The software connection for such printers is also more complex than with standard parallel printers. You must select the serial port from the Printer Preferences program and then set the Serial Preferences to match the printer's serial settings (these are usually controlled by DIP switches described in the manual).

Printers for the Apple II and Macintosh series use a ►

By Sheldon Leemon

PHOTOGRAPHED BY ED JUDICE



proprietary round plug, as do those for the Commodore 64 and 128. You can convert Apple printers for use with an IBM or Amiga with just a cable, but a Commodore printer requires a special interface to work with an Amiga or IBM. However, spending $50 or more for such an interface seems a waste of money, because for about $100 you can buy a brand-new, 9-pin dot-matrix printer that readily connects to an Amiga or IBM, uses easily obtainable ribbons, and produces high-quality output. Similarly, you can just about forget using a printer from the old Commodore PET computers, since they require an IEEE interface that is much more expensive than a new printer.

New computer users often wonder whether a hard drive or some minimum amount of RAM is necessary for printing complex graphics. The simple answer is that you need no more RAM or storage space for printing than you do to run the applications from which you print. For the most part, adding RAM or hard-drive storage will improve neither printout quality nor speed.

Hardware Problems

A problem in the physical connection between your computer and printer is usually pretty easy to diagnose. The most common symptom is that when you try to print, nothing comes out of the printer, and your computer displays a requester that says something like, "Printer trouble: check printer and paper." This message simply means that the information isn't making its way from the computer to the printer. To verify that you have a hardware problem, try sending text directly out of the parallel port. Open a Shell window and type

```
COPY s:startup-sequence PAR:
```

If you are able to print using this command, but unable to print from your applications, you should run the Printer program in the Prefs drawer to make sure that the correct printer port (parallel or serial) is selected. Since the default setting is parallel—the one used in the overwhelming majority of cases—this problem usually arises only if you or somebody else has changed this setting by accident.

If you still get the "Printer Trouble" message after entering the above Shell command, you need to check the three stops that your data makes along the way: the computer's printer port, the cable, and the printer itself. Check all of the obvious external problems first, before looking for more obscure causes. Make sure that the printer cable is plugged in firmly at both ends, and that the printer is turned on and in the "ready" position. Most printers have a "ready" button, and either a light indicating that it is online or ready, or

Problems, Causes, and Cures

Symptom	Problem Type	Solution
No print at all when you "COPY s:startup-sequence to PAR:" from CLI. "Printer Trouble" requester appears.	Hardware	Check that printer is on and ready. Check paper in printer. Check printer cable on another computer. Check computer printer port with another printer.
Text prints OK, but not graphics.	Driver software	Select another driver in Printer Prefs. Chose "HP LaserJet" for laser printers. Chose "Epson" driver for other printers. Make sure printer is set to same emulation. Choosing "generic" driver should print text OK, but no graphics.
Scrambled printing on a setup that usually works OK.	Printer setting	Turn the printer off, and then on again. This clears all of the internal settings, and it is always a good idea when your printer starts to act strangely.
PostScript printout produces strange text instead of your document.	Printer setting	Set your printer to "PostScript" emulation, not "HP LaserJet."
Incorrect margins; no color print	Printer Preferences application settings	Try changing the Preferences settings, both in the program from which you are printing and in the Printer Preferences (both text and graphics).
Printing is too slow	Several	If in graphics mode, try using a lower density setting in Preferences. If using a desktop-publishing program and complex images, you may need a faster processor in your computer to speed up printing. Also, note that it takes a very long time for PostScript printers to produce detailed graphics (up to half an hour per page). This is a function of the printer itself. ☐

an LCD display that shows the word "Ready" when all is well. Note also that most printers need to have the paper in position before they will go to the "ready" position. You can usually tell right away if your hardware connection is good by turning the printer on and resetting the computer. If all is well, the printer should also reset when the computer starts up again. Most printers make some sort of sound that makes it easy to tell when they reset.

If everything appears to be in order on the surface, but you are still not getting any output, try testing the components one by one. If you have access to a friend's computer with a working printer, try your cable on that system. If the cable checks out, try your printer on the other system. If both the printer and cable work on another system, the printer port on your computer may be the problem. This port is controlled by a CIA chip, one of the least reliable components on the Amiga. Replacement of the CIA is therefore one of the most common cures for printer-port problems. Although these chips are socketed on most Amiga models, it is probably a repair job best left to trained technicians.

Hardware problems are usually an all-or-nothing proposition, in that you get no print whatsoever. In some cases, however, your printer may miss occasional characters, or work only sporadically. These conditions indicate that your printer port may not be sending a strong enough signal to make it to the printer. Although most computers work fine with a cable as long as ten or fifteen feet, there are no guarantees. A long cable may work fine with one computer, and not at all with another of the same model. When in doubt, try using a shorter cable.

Although there is no easy way to see whether the printer is capable of receiving data—other than sending some data to it with another computer—most printers can perform a self-test that demonstrates they are able to print. These test routines usually print samples of all of the text fonts and special features. On older models, you must hold down the "Form Feed" or "Line Feed" button while turning the printer on in order to enable the self-test. On newer printers, there may be a Test or Demo button, or a menu selection. Consult your printer manual for details on how to use this feature.

B SELECTING DRIVER SOFTWARE

ONCE THE HARDWARE connection between your computer and printer is working, you should have no trouble printing plain text. That's because every printer does it in exactly the same way—for each number that the computer sends, the printer outputs the corresponding character using its own type font. Today's printers, however, can do a lot more than just print text. They can print special type styles like **bold**, underlined, and condensed. They can reproduce graphics images, and some can even print text and pictures in color. Unfortunately, not all printers use the same instructions for each function. This makes it difficult for a program to know which command to send the printer.

The Amiga uses a system of Printer Preferences to translate the program's request for a special printer feature (like "start underlining") into the actual commands used by the printer to perform that function. Once you have selected the correct printer driver, every application will be able to use all the special features of the driver software. Users of Workbench 1.3 and later can select the printer driver by running the Printer program found in the Prefs drawer of the Workbench disk. A list of printers appears in the left

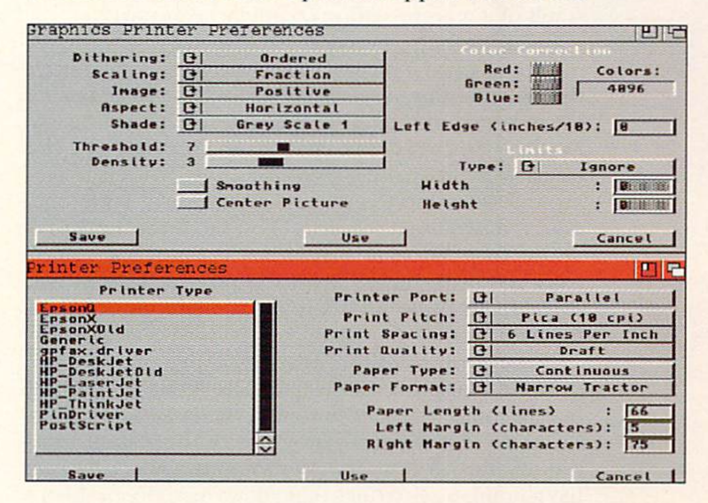
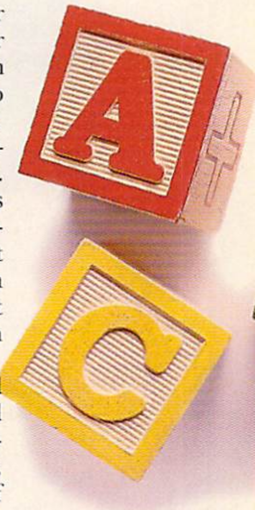


Figure 1. The two printer Preferences programs in the Prefs drawer of Workbench 2.0 and later allow you to select several important printer settings. The most important setting in the Printer program (below) is the printer driver, while PrinterGFX (above) allows you to select grayscale or color graphics printing.

half of the window (see Figure 1), and you select the one to use by clicking its name.

As there are literally hundreds of different computer printers, your printer's name may well not appear on this list. Don't panic. All you need to do is to find the closest match. Although printers tend to have their own unique characteristics, most are also compatible with one of three common standards. The manual for your printer will tell you which of these standards your printer follows (look for a section on Software Emulation modes), and what changes, if any, you need to make to your printer's setup to take advantage of these modes.



Just about every laser printer uses the same command codes as the Hewlett-Packard LaserJet printers. Some laser printers are also compatible with Adobe's PostScript page-description language. There is a special PostScript driver in Workbench 2.1 and later, but if you are using an earlier Workbench version, you can still talk to your printer by selecting the HP LaserJet driver and setting your printer to LaserJet emulation (check the printer manual for details).

All other types, such as dot-matrix, inkjet, and thermal printers, almost always accept the command codes used by Epson printers. For an older, 9-pin dot-matrix printer, you should select the EpsonX driver, which uses the codes for the Epson LX series of printers. For newer, 24-pin dot-matrix and other high-quality printers, the EpsonQ driver is appropriate.

DRIVER PROBLEMS

It's easy to figure out when your printer driver is responsible for a problem, because it will show up only when you are trying to use one of the printer's special features, such as graphics printing, not when you are printing plain text. A typical case is when you try to ►

print a picture from a program like DeluxePaint, and you get a stream of letters and numbers instead of a picture. Another symptom of driver problems is getting an odd character or two at the top of the first page while printing plain text. This unwanted output is usually the result of a margin-setting command gone awry.

It's a big help, however, that many of the newer programs print a picture of the text on a page, rather than just sending text characters to be printed using the printer's own internal fonts. Word processors like Final Writer and ProWrite use graphics for the highest-quality print modes, so if the printer drivers are not set correctly, these programs will seemingly not even print text correctly. You can force these programs to print plain text by selecting Draft mode from the print requester. If the programs print text correctly in Draft but not in Final mode, the driver is likely to be the culprit.

If your printer produces recognizable output when printing a graphic, but the quality is not up to what you had in mind, you can fine-tune the results using the PrinterGFX Preferences program (or the Graphics section of the 1.3 Preferences program). This program has a number of settings that allow you to fix problems like pictures that are too dark, not centered, or the wrong size. The Density setting is one of the most important ones, because it determines the number of dots printed per inch. A higher density setting gives you better detail, but uses more ink, making the picture darker, and it takes more time. A lower density setting generally makes the picture print faster and lighter, but may lose some of the detail.

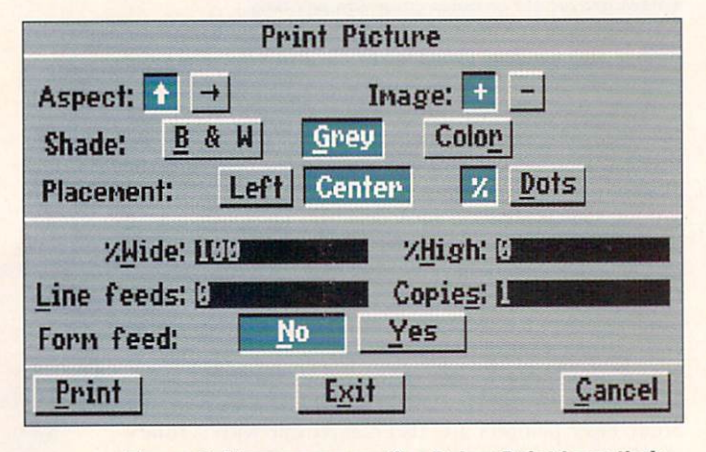


Figure 2. Many programs like DeluxePaint have their own printer setup panels, where you can make selections similar to those found in the Workbench Preferences programs. These settings usually override Preferences.

Although most printers produce acceptable output in Epson or HP Emulation modes, you need a driver specifically tailored to your printer in order to produce the highest quality output and to fully use the special features of your printer. Among the best-known vendors of these drivers are Creative Focus, which sells enhanced drivers for the HP DeskJet and LaserJet printers, and Wolf Faust, whose Studio printer drivers (distributed in the US by NoahJi's) support the Cannon line of inkjet printers and a wide variety of popular dot-matrix printers. A few printers, like Fargo's Primera, even come packaged with Amiga drivers. If you have an older printer, you may not be able to find a commercial driver for it, but you may find a public-domain driver on a bulletin board or in the Fred Fish library of freely distributable software.

PostScript printers require special care. If your program tries to send PostScript output to your printer while the printer is set in HP LaserJet mode, you'll wind up with page after page of PostScript text commands. If your program tries to send HP codes while your printer is in PostScript mode, you won't get any print at all. In short, make sure that the output you've selected on the computer matches the emulation selected on the printer.



Applications Software Settings

THE FINAL FACTOR influencing your printer's output is the applications software that actually does the printing. The Printer and PrinterGFX programs allow you to select a number of settings relating to paper size, print quality, graphics printing, margins, and type font, but applications are free to accept these recommendations or ignore them. Programs for which printing is an important function generally have their own own printer-setup menu (such as DeluxePaint—see Figure 2), and use these settings rather than the ones from Preferences.

If you are having problems getting an application to print in color, to set the margins correctly, to center the printout on the paper, or anything similar, your best bet is to check to see if the program has its own printer-setup menu. Note, however, that some programs use both the program settings and the Preference settings. If your margins don't seem right, even after setting them from your program, try setting the Preference margins to 0 and 80.

Although applications programs support most printer functions, they generally don't allow you to switch your printer's font when printing in text (not graphics) mode. When you want to select a different font, you usually must do so from the printer's front-panel controls. But there are a few PD programs—such as the PrinterCTRL program on Fish disk 723—that can send the proper codes to your printer. Also look for HooverSoft's Print 1.4A program, which provides simple front-panel controls for a NEC on your screen, or Kelly Petlig's GXSSet, which does the same for the Citizen GSX line of printers.

We Arrive at XYZ . . .

After reading about all of the things that can go wrong in printing, you may be ready to just give up on the idea of ever getting a clear printout! Don't be discouraged. The nature of a particular printing problem provides a strong clue as to its source and its solution (see "Problems, Causes, and Cures" on p. 20). With a little practice, you'll find you can produce printed copy that matches the quality of your computer display. ■

*Sheldon Leemon, a computer/video consultant and instructor, is the author of two books and scores of articles covering the Amiga. Write to him c/o **AmigaWorld,** Editorial Dept., 80 Elm St., Peterborough, NH 03458-0802.*

DOS Upgrade Blues

Addendum



By Daniel J. Barrett

Editor's Note: With a few final fixes, author Daniel J. Barrett concludes his examination (begun last month, p. 23) of potential trouble spots for users upgrading to AmigaDOS 3.1. Those upgrading to 3.1 should also refer to Denny Atkin's "Denny on DOS" for further help—particularly to his Jul. '94 column (p. 5) on workarounds for the absence of speech-synthesis software in the latest OS versions, and to an upcoming column on fixing erroneous protection bits in DOS 3.1.

TO WRAP UP our discussion on "gotchas" you may encounter under AmigaDOS 3.1, we'll consider problems concerning ARexx, requesters, rebooting, and documentation.

AREXX ABSENT?

Have your ARexx scripts all stopped working since the upgrade? In AmigaDOS 2.1 and later, the ARexx server program, RexxMast, no longer runs automatically when you reboot. To fix this problem, choose one of the following solutions:

1. Drag RexxMast from the System3.1:System drawer into the System3.1:WBStartup drawer, and reboot, *or*
2. Add a line to your S:User-Startup file:

```
RexxMast > NIL:
```

Solution #2 is slightly better because RexxMast pops up a little window if you run it from the Workbench.

REPLACEMENT REQUESTERS

Some of you may be using the wonderful freeware program ARQ, by Martin Laubach. ARQ replaces the standard system requesters (e.g., "Please insert volume XXX in any drive") with more attractive ones, complete with animation and sound! Unfortunately, I have received several reports that the latest version, ARQ 1.83, has some problems under AmigaDOS 3.1. In fact, some users report that their Amigas were crashing regularly and mysteriously until they stopped running ARQ. For safety's sake, I recommend not running ARQ until a version comes out that fixes this problem.

BOTHERSOME BOOTING

Some Amigas with SCSI hard drives may have problems booting under AmigaDOS 3.1. The problem is that some slower SCSI hard drives, notably the Seagate ST125N, cause a "SCSI lockup" to occur. This can prevent the Amiga from warm booting or from booting via the Boot Options screen. (To see the Boot Options screen, reboot the Amiga and hold down both mouse buttons until the screen appears.) Cold booting is still possible, but your hard drive may not be accessible at all.

One solution to this dilemma is to get the freeware program SetBatt, by Olaf Barthel and Andreas Kirchwitz, which is available on BBSs and the Internet Aminet ftp sites in the file "SetBatt-1.2.lha". SetBatt can be used to add a delay to your Amiga's boot sequence to allow slow hard drives to catch up. Once you have SetBatt, boot your Amiga from a floppy disk and type the command

```
SetBatt Timeout L
```

This may cure the problem. SetBatt needs to be typed only once, as the settings are stored in the Amiga's nonvolatile RAM. (If your Amiga is ever opened up to be serviced, you may need to type the command again.)

Be aware that SetBatt is not well documented and can be dangerous to your Amiga if used incorrectly. If you are uncertain about using it, I recommend getting help from an experienced Amiga owner or your dealer.

MANUAL MIXUP

If you have upgraded from AmigaDOS 2.04 (or earlier) to AmigaDOS 3.1 and you have a hard drive, you will find an unpleasant surprise in the *Amiga OS 3.1 Workbench* manual. Page 10-2 briefly mentions the programs HDToolbox, for partitioning your hard drive (among other things), and HDBackup, for backing up your hard drive. The manual refers the reader to the *Amiga Hard Drive User's Guide* for full documentation. Sadly, this manual is not included with AmigaDOS 3.1! (It was included with some AmigaDOS 2.1 upgrade kits.)

If your Amiga has a hard drive and you do not have this additional manual, I recommend contacting your dealer to try to obtain a copy. The *Guide* contains a great deal of important information on managing your hard drive.

Speaking of manuals . . . unfortunately, illegal copies of AmigaDOS 3.1 have been spreading throughout the US. Such copies can be identified easily because they do not come with bound manuals. Instead, they come with photocopied manuals or even none at all. Some of these illegal copies are even being sold for higher prices than the legitimate release! In the US, a legitimate copy of AmigaDOS 3.1 includes:

- Three paperback manuals with black covers, the Commodore logo, and five stripes of color (green, red, blue, yellow, and purple). These manuals are: *Amiga OS 3.1 Workbench*, *Amiga OS 3.1 DOS*, and *Amiga OS 3.1 ARexx*.
- Six floppy disks (with white labels, the Commodore logo, and five colored stripes) labeled: Install, Storage, Workbench, Fonts, Extras, and Locale.
- A set of Kickstart ROM chips.
- Instructions for installing the Kickstart ROMs.
- An AmigaDOS Quick Reference sheet. ■

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Graphics Import/Export: IFF, TIFF, GIF, PCX, BMP, IMG, GEM, CGM, and EPS.

Text Import/Export: ASCII, Microsoft Word, Works, Write, WordPerfect, WordStar, RTF.

Fonts types supported: Compugraphic, PostScript Type 1, TrueType, Nimbus Q, AmigaDOS bitmap, built-in printer fonts.

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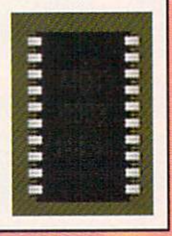
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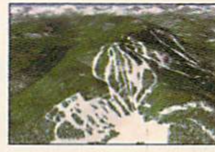
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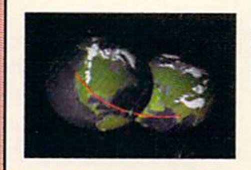
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Controlled Alpha-Channel Effects

#72

A continuing series of tips, techniques, and tricks for creating more imaginative Amiga graphics.

By Joel Hagen

IN ACCENT#64 (Jun. '94, p. 60), we explored the use of the alpha channel as a creative way to reinterpret photographs by substituting new patterns and colors for the original value levels. This month we will use ImageFX (***Nova Designs***) to perform more deliberate alpha-channel operations in two step-by-step projects. The first adds effects to display text and the second uses the alpha channel to control colorization.

The alpha channel is an area of memory that can contain a 256-color grayscale image, which you can then use as a mask to control how other images or operations affect a picture displayed on the main screen. Dark areas in the alpha channel protect corresponding regions of the main image, while light alpha-channel areas allow the main image to be affected. Put another way, the alpha channel acts like a stencil with the advantage of variable protection based on gray values.

Creating Outstanding Text

In the accompanying illustration, the snapshot on the left was taken with a disposable underwater camera. For the first project, the word DIVE is to be added in large text that does not obscure the image. To try this, begin with any painting or digitized photograph that has a good range of values. Next, create a text screen exactly the same size with bold white letters on a black background. Save this crisp text screen for later use. The goal of the experiment is to have transparent letters stand out from the photograph by virtue of surrounding soft-edged shadows.

There are many ways you can create a screen with soft-edged text. You might simply soften the entire crisp text screen using the Blur button under the Covolve requester. With the intensity set high, you can repeat the operation a few times until the blur extends softly away from the letters.

Before you blur, you may find it useful to expand the letters a bit to get a broader shadow. In ImageFX, one way to do this is to pick up the text as a brush and outline it, which you accomplish by selecting the black background color with the comma key and clicking the scissors tool twice until a small M shows. This means that the currently selected color will not be picked up, and the text can be neatly removed from the background. Next, select white from the letters and outline the text brush a couple of times with the o key, or with Outline from the Brush requester. Blurring this fatter text after it is stamped in place on a black screen produces a wider soft shadow.

If you want an even broader shadow, one trick is to use the Flood Fill. Double-click the Fill button to bring up its requester; then set the Edge slider to Feather In. Adjust the Radius slider as high as you want the soft edge to extend. Select white to fill the black areas of the crisp text screen. The result will be a white screen with soft "shadow" areas surrounding the original positions of the text. In the Color requester, select Negative to reverse the colors of the text screen.

Motion Blurring

In the illustration, Motion Blur was the method I used to produce a soft-shadow mask. This effect is under the Convolve requester. The angle was 90 degrees and the length was 50 pixels. Use a box to loosely isolate the text region before applying the convolution. You can repeat Motion Blur a second time to lengthen the effect. In the illustration, this was done within a new box that isolated the upper half of the text and the background above it. This limited the extended effect to the region above the text.

To apply the text shadow to the main image, load the soft-edge text

Through creative use of the alpha channel, you can add subtle effects to display text in an image—and gain delicate control over colorization.

screen from the Alpha requester to place it in the alpha channel. Create or load a dark-gray screen as a swap screen, and then load the photograph on the main screen. In the Composite requester, set Alpha to Use As Frisket and press the Merge button. To start the operation, set the percentage around 50 or 60 and hit the Okay button. The gray color from the swap screen will merge at about 50% transparency with the main image. In this operation, dark areas of the alpha channel protect corresponding areas of the main image. Gray color merges with the photograph where the alpha channel is light. The result is a filled shadow on the photo.

To cut letters out of the shadow as seen in the top-right finished image, load the crisp text screen to the alpha channel and the original underwater photo to the swap screen. A Merge at 100% with Alpha set to Frisket pulls the original image through the text to the main screen, creating crisp letters in the soft shadows. In the illustration, I finished the image by merging a cyan swap screen at 10% through the same crisp alpha channel to slightly boost the color of the letters.



This illustration shows two projects involving deliberate use of alpha-channel masking. The top sequence demonstrates the addition of display-text effects. The lower sequence demonstrates controlled colorization.

Controlling the Color

The lower sequence in the illustration demonstrates colorization controlled by the alpha channel. The idea is to give the light an eerie green cast without affecting either the general water color or the diver's skin color. To accomplish this, copy the main image to the alpha channel and use it as a mask. This lets you accurately affect dark or light details of the main image without trying to draw freehand selections around complex regions.

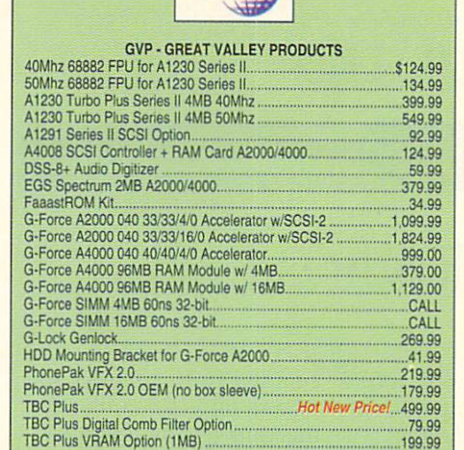
Manipulating the color of an image before copying to the alpha channel can dramatically enhance contrast, especially if a certain color predominates in regions of the original image. In the illustration, Cyan was dropped to zero in the Balance requester before I copied the image to Alpha. Then I raised the contrast slider on the alpha screen until the diver was solidly masked and only the illumination patterns and bubbles were light. I then used this alpha-channel mask as a Frisket and image-mapped a green swap screen to the main-screen photo, using the Composite requester. Image Map preserves the values and detail of the main image as it alters the hues.

I retouched a white scanning flaw on the diver's arm, seen in the inset, by using Remove Feature from the Effect requester. A small area like this is ideal for automatic feature removal. Magnify the area and trace around it with Freehand from the Region requester. Remove Feature analyzes surrounding pixels and creates a smooth gradient across the selected region.

Both of the illustrated projects could have been done using other techniques. The methods outlined, however, offer the opportunity to control and tweak the results at several stages while learning the operation of the alpha channel. Experiments are forgiven, thanks to the Undo buffer, and as you explore, you'll often find that you stumble onto better ideas than were contained in your original plan. ■

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope for a reply.

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Video in Focus

PRACTICAL ADVICE FOR AMIGA VIDEO PRODUCERS

By Paulo de Andrade

Getting toast with less bread

Today, there are many dedicated video switchers on the market that can deliver outstanding results with any model of Amiga equipped with a genlock. We are going to focus here on two of these stand-alone products, Videonics' MX-1 and Panasonic's WJ-AVE7, each available for only a fraction of the cost of the Video Toaster.

You don't get 3-D software, a paint program, or a CG with these switchers, but you probably already have these on your Amiga, anyway. And, surprisingly, these entry-level switchers outperform the Toaster in some areas, because the Toaster's switcher has barely changed since its introduction. (LightWave and the CG are the only modules that have undergone major upgrades.)

The Videonics MX-1

For only $1199, this switcher packs in a small box hundreds of transitions and digital effects, plus an audio switcher. Besides having much better image compression than the Toaster, the MX-1 features a chroma keyer, y/c and composite ins and outs, and more—and you don't need a TBC. The image quality is very good; fed y/c signals, its output displays less noise than the Toaster's (confirmed by my waveform monitor).

The MX-1 is a four-input switcher, and it also sports three stereo audio inputs. A GPI input allows most edit controllers to trigger its transitions automatically. Outputs include audio, headphones, composite and y/c program, and a composite preview that also displays the control interface. The composite-video connectors are all RCA-type, which—while I wish they were BNC—is more sensible at this price range, as it makes for easier connections to prosumer equipment.

Some nice little touches are present in this small package. The transitions are all grouped according to type, making it easy to use them. You can also directly access them by their individual numbers, and a handy reference card makes finding the right effect a breeze. The control interface displays four digitized representations of the inputs, saving you the expense of extra monitors. Although these images are not displayed in real time, the updates are frequent enough for most applications.

A built-in color generator lets you select individual colors for the background and wipe borders. All transitions have several speeds, and you can reverse their directions and stop them at any time by pressing a button. There *is* a fader bar, but it is the weak link in this unit, its use so imprecise that I decided to avoid it altogether in favor of the auto-take button. A learn key lets you store a sequence of events for uninterrupted replay, and a freeze key allows you to grab a video frame instantaneously.

Most of MX-1's transitions mimic those found in professional DVEs and switchers, including a picture-in-picture effect that, while not perfect, is quite usable. Besides the transitions, you can assign to any input some specific effects, including image flips (horizontal and vertical), black & white, negative, and a variable-speed strobe that even has a simulated film-speed rate.

I haven't space to list more of MX-1's features, but the above should convey the wealth this box has to offer.

The Panasonic WJ-AVE7

In the WJ-AVE7, Panasonic has brought a "big switcher" feel to the masses for a very affordable $1200. Working and feeling like a traditional production switcher, it has y/c and composite inputs and outputs—as well as audio (three stereo inputs and one microphone). This is a two-input switcher, with a third input for a keying signal. Like the MX-1, the composite video connectors are of the RCA type, and no TBCs are needed.

Although the WJ-AVE7's fader bar is more of a slide control, internal damping gives it a good feel. Performing dissolves on this unit is a joy, both because of the control you get—you may change speed anywhere during the transition—and because the digital circuits keep both video levels high, resulting in beautiful image mixes and amazing half-dissolves. If your hand is not steady, the auto-take button handles the transitions for you with adjustable speeds.

Even though the WJ-AVE7 falls short of the MX-1 as a transition-master, it offers quite a few wipes and variations that resemble those of higher-priced equipment. It also gives you picture-in-picture with about the same quality compression as the MX-1, but with a few extra options. You can position your compressed image anywhere on the screen with a joystick, make it cast a shadow over the background video, or have two images compressed at the same time.

While the WJ-AVE7 does not have a built-in chromakeyer, it has two separate keyers: an external-luminance one and a true downstream keyer. You may invert either key and select any source. The switcher is configured so that you may fade a CG title in over video, and then fade both the title and the video to black simultaneously. A second joystick controls, on a color corrector, the hue that you can assign to one source or both at the same time. You can also adjust the color intensity all the way from black and white, making slight image tints a breeze.

While WJ-AVE7 does not offer as many effects as the MX-1, its real switcher feel gives it a major production advantage, allowing for easier use, faster setups, and a vast number of combinations. Moreover, its signal quality is top-notch—cleaner than the Toaster's. With it, you can create very professional-looking videos. ■

*Paulo de Andrade is president of Digital Reality, an Amiga-based broadcast-video and 3-D animation company in Seattle. Write to him c/o **AmigaWorld**, Editorial Dept., 80 Elm St., Peterborough, NH 03458.*



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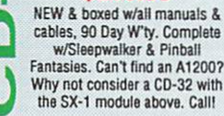
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From p. 10.

then does the math and alerts you about any discrepancies.

Transactions that are the same every month, such as insurance premiums, are entered in a Saved Transaction window. You can enter the payee, the amount, whether it is a credit or debit item, and if it's tax-deductible. This information is all saved and ready to use at a click of the mouse.

More Window Talk

You can assign each transaction to any number of categories, controlled through the Category window and used by the Report window, which allows you to sort through the data. Assuming auto repair is one of your categories, all checks you wrote for car repairs in the last 90 days are just a few clicks away. Reports based on payee and general register data are also available. Three levels of sorting are possible, and C&B supports wildcards, allowing you to zero in on the desired data.

The final two sections of the program are the Calculator window, which contains (surprise!) a calculator, and a Preferences window. The Calculator window has a special gadget that lets you paste information from one area to another. By holding down the mouse button, you can drag data from this window into any other that can accept that type of data. For instance, you can use the Calculator to add up an invoice, and then drag the total into the Check window. The total is copied into the Amount field of the current check.

Slightly Off Balance

There are a few things in C&B that could stand improvement. For instance, you can drag a saved transaction into the Check or Register window, and the program creates a new entry for that transaction. Unfortunately, this action fails to assign a check number for the new transaction when the Check Number Preferences is set to Derive. Also, when you are printing checks, the Insert Paper requester appears four times!

A more serious fault is that when you exit the program, it does not check with you to see if unsaved data exists. It always asks if you are sure you want to quit, but if you click on "yes," any unsaved work vanishes. Finally, something the otherwise clear manual fails to mention is that to install the program on your hard drive, you need to add an Assign statement to your User-Startup file in order to start the program from a datafile icon.

These small quibbles aside, AmiSoft has come up with a fine way to let your Amiga replace your old checkbook.

—Rob Hays

DiskSalv 3

Intangible Assets Manufacturing, $40

All Amigas.
2.x/3.x compatible.
Hard-drive installable.
Not copy protected.
Accelerator compatible.
***Minimum system*: Hard disk, 1MB, AmigaDOS 2.x or later.**
***Recommended system*: AmigaGuide, accelerator.**

Powerful disk/file maintenance and recovery software.

DiskSalv 3 is ex-Commodore engineer Dave Haynie's first commercial implementation of this time-honored disk utility. With an accumulated nine years of steady development—first as an in-house disk-repair tool at Commodore, and then later as one of the first programs to support both Localization and AmigaGuide—DiskSalv enjoys a legendary reputation for restoring damaged disks.

DiskSalv 3's restoration abilities are, of course, dependent on the seriousness of the error or damage. When a disk's integrity is beyond repair, the program offers a veritable laundry list of ways to salvage data from it.

Out With the Old, In With the New

It arrives on a single disk that uses the Commodore installer to position the program and its associated files on your hard drive, and you'll find nary a manual or booklet. IAM made the environmentally conscious decision to place all documentation in AmigaGuide format. A few clicks of the mouse is all it takes to output the documentation to the printer, if you so desire.

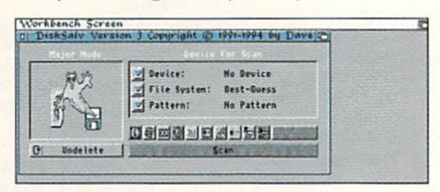
Merely listing and briefly describing DiskSalv 3's myriad features would fill several review pages, so I'll zero in on those improvements made over its earlier shareware versions. For starters, you'll see a clever Workbench user interface that lets you cycle through a series of screen buttons and graphic gadgets. The cycled disk modes include Salvage, Undelete, Repair, Unformat, Check, Backup, and Cleanup. Each mode is accompanied by professionally designed drawings—an underwater diver and magic wand, for instance—while the associated buttons depict such humorous items as an overflowing beer mug.

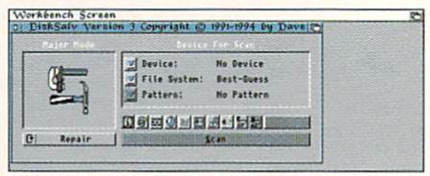
DiskSalv 3's ability to extract data from a failed disk and copy the material to another disk is just one aspect of the program. It not only recovers deleted files from an undamaged disk (a more common need than failure recovery), but also fixes a damaged disk in place. The program also locates hidden hard-disk partitions, reports errors, and backs up an AmigaDOS volume to any AmigaDOS disk or tape device, à la Ami-Back.

A unique drag-and-drop design makes your ability to select devices extremely fast and simple. Just pick up a directory, file, or volume and drop it into the mode window to automatically activate the current setting. The file browser sports a dual list interface, and an enhanced AmigaDOS 3.x-style listview appears even when the program is operating within an AmigaDOS 2.x environment.

Guide Hooks

DiskSalv 3 offers an online AmigaGuide manual with interactive links. Just press the Help key, and the AmigaGuide node that corresponds to your current context pops up in an asynchronous AmigaGuide window. Error checking immediately revealed that the AmigaGuide library residing on my trusty A2000 was ►







DiskSalv 3 offers a variety of ways to retrieve lost data and scan for trouble.

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outdated, something no other program had caught.

The program also incorporates improved mechanisms for automatically locating missing volumes or keying in device parameters, and device descriptions can be read from or written to Rigid Disk Blocks. In addition, complex pattern-matching language allows multiple file inclusions, exclusions, or searches by matching filenames, filenotes, dates, sizes, or protection bits.

Users of the old DiskSalv will immediately note improvements in the file-system-detection mechanism, which now recognizes MS-DOS and OS/2 file systems. Its ability to recognize these formats let the program automatically lock those disks out so that no Amiga-specific functions will inadvertently be performed on them.

DiskSalv 3's Unformat also does double duty as a robust "undelete in place" function, restoring in their original places any deleted files that are still viable. The aforementioned Check mode does a fix-in-place analysis, but only generates a report, leaving the disk unscathed. The report (log file) format now supplies greater details as to error conditions.

An all-new Back-up mode performs traditional backups of any logical or physical AmigaDOS volume, using the standard DiskSalv recovery mechanisms. When used for backups, any exclusion lists you make are available for the program's Salvage mode. And you have to deal only with one kind of archive format (if you use tape or other back-up streams), which is fully documented and supported via a C-Language Include file.

Miscellaneous Notes

The program's new Cleanup mode is a slow but thorough process that permanently erases any deleted files encountered on a partition or device, leaving no trace of those files. You can send a host of documented configuration options to DiskSalv 3 via icon Tooltypes or the command line.

While the program performed flawlessly on my A2000/030, my A4000/040 operating under AmigaDOS 3.1 crashed once or twice when running DiskSalv 3. IAM tech support (easily reached through both CompuServe and the Internet) acknowledged this problem, saying it's a mysterious one that appears at random on some, but not all, OS3.1-equipped A4000/040s. They assured me that once the problem is identified, all registered owners can expect to receive a free upgrade.

I have a suggestion about another item that is less of a problem than an oddity: Some operations, such as backing up a device, give two choices when thay are completed—New Device or Quit. Selecting the latter exits the program. A third option, perhaps Continue, or something to that effect, might be somewhat less confusing. And that's my gripe list in its entirety.

In these days of waning support for the Amiga, it's good to know that there are programs such as DiskSalv and companies like IAM that release and aggressively support Amiga products. The price is right, too, comparable to that of the commercial disk utilities for the Mac and PC. My advice: If you get no other utility for your Amiga, get DiskSalv 3.

—Tim Walsh

PageStream v3.0c

Soft-Logik Publishing Corporation, $399.00

All Amigas.
2.x/3.x compatible.
Hard-drive installable.
Password copy protection.
Accelerator compatible.
***Minimum system*: AmigaDOS 2.04 or later, hard drive, 3MB RAM.**
***Recommended system*: Accelerator, 8MB or more RAM, PostScript laser printer, AGA-compatible Amiga.**

Desktop-publishing software.

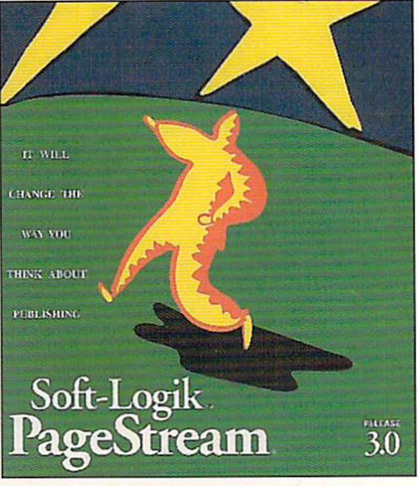
Editor's note: The version of PageStream (3.0c) that's being shipped to reviewers is the same that's been released to paying customers. More than 40 features in this version either do not work at all, or function only partially. The included documentation freely admits this and points out the areas in need of improvement.

Soft-Logik's justification for releasing the program in this form to the public is to let users "get a headstart on learning version 3 while waiting for a final version." The company promises frequent free updates to this work in progress, which, when finished, will be called PageStream 3.1. So when you are ready to buy, make sure that you get the latest version.

PageStream 3.0 has arrived, bringing with it full AmigaDOS 3.x and AGA chip-set compatibility and the ability to display graphics in up to 256 colors on AGA Amigas. This all-new release is bundled with two utility programs: BME, a bitmap-image editor, and PageLiner, an ascii editor. This robust package is the long-awaited product many Amiga users have seen in various stages at World of Amiga shows since April of 1993.

More Buttons, More Productivity

There's a fresh new interface and a new single-column Toolbox. Two new gadgets have been added: the Toolbar and a box called the Edit Palette. The Toolbar puts into button form such frequently used menu selections as Undo, Redo, Cut, Copy, Paste, and Print.



Pagestream 3.0c provides your Amiga with new DTP capabilities.

The Edit Palette adapts to your work mode. When drawing objects, the mouse position is displayed using x and y coordinates. When editing objects, it shows appropriate information such as x, y, and z rotations in degrees, width/height coordinates for rectangles, and center coordinates and radius for circles. All of these numbers are incrementally adjustable.

PageStream automatically updates measurements if an object is adjusted in the usual fashion by dragging it with the mouse. Furthermore, the units of measurement can be set to inches, centimeters, picas, points, and so on.

In text mode, the Edit Palette changes to display current text size in points, width in percent, tracking and leading, and font name. All are adjustable with text-entry gadgets or arrow buttons. More buttons select bold, italic, and other text modifications. Another button changes the display to formatting and►

text-justification selections for paragraphs and lines.

Other "Palettes," in the form of small windows with scrolling lists, are available for Fonts, Macros, Pages and other such items.

AREXX CONTROL

An extensive list of internal PageStream macros complements PageStream 3, a built-in macro generator automatically learns and writes customized internal macros for you, and there is complete macro management. ARexx macros are supported as well, and a long list of prewritten ones is included. Also, bitmapped images can be directly exported to BME or other ARexx-compatible paint programs.

If you get lost with all the new features, online help is available in the familiar AmigaGuide format. The new manual is far more comprehensive than in the past, with a multitude of menu screen shots and diagrams, a well-written table of contents, and an extensive index.

Getting around on zoomed-in or larger-than-screen pages is easier now, with the addition of screen-scrolling and page-dragging abilities. Many keyboard shortcuts have been changed, but long-time users will find that the new ones are logical and easy to learn. Objects menu shortcuts now use only a single letter without the Amiga key, although Project (which was File in v2.2), Edit, and View menu shortcuts still use the Amiga-key modifier.

Color selection and control is astounding. Grayscale, RGB, CMYK, HSV, and HSL sliders allow custom mixing. Complete Pantone support provides innumerable preset color choices for Pantone Coated and Uncoated, Process and ProSim colors.

The manual boasts support for virtually all PostScript printers and PostScript printer description (PPD) files, as well as for Windows and Macintosh Type 1 fonts. My version of 3.0c did not yet have the Mac fonts implemented, and, lacking a PostScript printer, I could not test the PPD or Windows font features. The program includes more than 60 fonts and a collection of graphics samples from various companies.

GRAPHICS HANDLING

Although PageStream now loads Adobe Illustrator, EPS, and other image formats, it has no image-editing capabilities of its own, but you can export via ARexx some image formats for editing in BME, the bundled bitmap-editing program. Besides pixel-by-pixel touchups, BME can do some image processing, including Lighten/Darken, Contrast, Negative, Autotracing, and others. The Autotracing, which outputs in DR2D, worked well in tracing scanned black-and-white artwork.

The other bundled progam, PageLiner, includes a spelling checker and, if no document is loaded, presents only a small unobtrusive menu bar.

ALONG THE FAULT LINE

Hopefully, the glitches in the present version of PageStream will soon be fixed. In the meantime, here are some major problems I encountered.

If you are accustomed to using less than 256 colors for the Workbench screen, you will encounter highlight and shadow color problems. The only solution I found was to reset the Workbench to the default Palette. Also, freehand-drawn lines created in version 2.2 load as closed-loop objects, with the two end points connected by a straight line. Forget using old keyboard shortcuts, too. Selecting the traditional Amiga-c (lowercase) to copy locks up the program. Use Amiga-C (uppercase).

You now need to enter a temporary password every time you run the program. Once you send in your registration card, you will receive a permanent password. If your registration card is lost in the mail, you'll need to contact Soft-Logik for a solution.

Typing text directly into PageStream 3.0 occurs at a snail's pace, as does the program's non-PostScript printing. I compared 3.0c and 2.2 print times on a 24-pin, dot-matrix machine using an A4000/040 with 18MB of RAM. Version 2.2 created a page in just 19 seconds, while v3.0c took 1 minute and 45 seconds. Moreover, once printing commenced, v3.0c stopped mid-stream to perform some unknown ciphering tasks.

In addition, in loading identically sized 24-bit images, the program would inexplicably display some in different sizes and out of proportion, while others appeared correctly proportioned.

Finally, some rather commonly used functions did not work, including the Reshape tool, so editing freehand-drawn objects and curves was not an option, and Landscape printing for non-PostScript printers was, to put it politely, also on holiday.

DIAMOND IN THE ROUGH

If Soft-Logik holds true to form, PageStream 3.0c is destined to be a huge success. Great features, like the gradient, radial, or shaped dithered fills for text are must-haves for serious DTP work. With so much obvious effort expended in making it friendlier, more flexible, and much more powerful, the new PageStream should be the best DTP program ever developed for the Amiga.

—Fred Hurteau

HOLLYWOOD FX

Synergy International, $499

All Toaster-equipped Amigas.
2.x/3.x compatible.
Hard-drive installable.
Not copy protected.
Accelerator compatible.
Minimum system: **Video Toaster, 10MB RAM, LightWave 3.0 or later.**
Recommended system: **2MB chip RAM, 18MB RAM, PAR, TBC-IV.**

Front-end for Video Toaster's LightWave.

Video Toaster users who employ the Switcher's various DVEs are familiar with its heavy pixelization on all image rotation, scaling, and warping. Hollywood FX (HFX) is a simple, user-friendly front end to LightWave that gives videographers access to perfectly clean Toaster effects and transitions.

TOP TO BOTTOM

Arriving on three disks that install easily with the standard Commodore installer routine, the software is intuitive, even for those with little or no LightWave experience. Unlike many other Toaster products, this one has no special requirement for directory location in relation to the Toaster software.

HFX requires LightWave 3.0 or later and at least 10MB of both RAM and free disk space. To use its full potential, however, you'll need 2MB of chip RAM, a Personal Animation Recorder (PAR) and a TBC-IV, along with a minimum of 18MB of RAM. While HFX works well with just 1MB of chip RAM, to run it with the PAR, you'll need to use the new stand-alone LightWave. Even Warm and Fuzzy Logic's LightRave consumes as much chip RAM as if you're using the Toaster Switcher.

The top half of HFX's interface is a panel of effects croutons like those of the

Toaster Switcher. Selecting one of them displays a miniature animation of the effect along with a written description. Currently, 41 different effects are included, arranged a dozen per page. Examples include page curls, spherical warps, particle effects, and some that simply defy description.

The bottom half of the interface consists of one of five different screens used for entering the various parameters needed to customize each effect. For example, you use the Images screen to specify the stills or sequences—including an optional background image—that you want to map into the effect or transition. One effect, a tumbling child's block, allows the mapping of six different images onto its sides.

Optimum Effects

With the PAR running in the background, you can specify a PAR animation as a sequence, and HFX loads each frame of the animation as it renders the effect. This method allows HFX to act as a truly high-quality Toaster Switcher replacement for non-live video. The remaining screens are labeled Options, Output, Render, and Batch, and each provides a variety of choices familiar to LightWave users, yet comprehensible even to the novice. Should questions arise, the manual explains every option.

HFX offers three output formats: 24-bit IFF images, Toaster Framestore, and Toaster4000 animation. Of course, the two Toaster formats require you to run LightWave from the Switcher. Besides rendering custom Switcher effects, the program also provides a way to run scripts for automatic post-processing of your generated images.

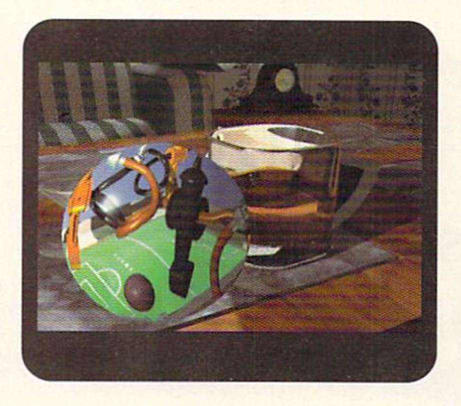
Most of the supplied scripts apply a painted look to the images and use AD-Pro as the image-processing engine. I'd like to see scripts for other software, such as ImageFX, and also options for ramping the post-processing in and out through the duration of the effect or transition. For example, it would be nice to specify a transition that starts out normal, then turns into an oil painting at the mid-point, and then goes back to normal at the end. Of course, anyone with a reasonable grasp of ARexx can add these changes to the supplied scripts.

Another bonus of HFX is its batch-rendering capability. Not only can you set up your various HFX effects and add them to the rendering queue, but any LightWave scene file you have previously created can be queued up as well. Even if you aren't using HFX for anything else at all, this can be an extremely handy tool for batching up multiple LightWave scenes for unattended operation. HFX allows you to specify the resolution, output type, and whether or not to render alpha for each scene in the queue. All other LightWave scene parameters, such as antialiasing or what frames to render, must be specified in the scene file.

Few Complaints

You'll quickly discover that a few of the effects have some quirks. For example, enabling the shadowing option may prevent the use of a selected background image. Also, I was unable to get the AD-Pro OilPaint post-processing script to function. Odd, considering it's virtually identical to the Fresco script, which worked fine.

Also problematical is that any attempt to change the total frame count in the render screen after completing a batch scene render causes a system crash. Interestingly enough, HFX works fine with LightRave because it emulates the Toaster in this respect. By the time you read this, however, version 1.27 of the software should be available, correcting any bugs and effects quirks.



Sample scene created with HFX.

A special version of HFX is available from Synergy International that works properly with ScreamerNet. Also in the works are several volumes of new effects targeted at a variety of applications.

The accompanying manual is quite complete, although too sparse in its description of ARexx scripts. Hollywood FX may be a bit more expensive than most Toaster-related products, but an experienced LightWave user could assemble these effects only through a major investment in time.

—Mark Thompson

Fractal MusicLab

Digital Expressions Research, $99

All Amigas.
1.3/2.x/3.x compatible.
Hard-drive installable.
Not copy protected.
Accelerator compatible.
Minimum system: **2MB RAM.**
Recommended system: **Hard drive, accelerator, MIDI interface.**

Reveals relationships between fractals and music.

Just when you thought the software industry had pretty much run out of new ideas, along comes Fractal MusicLab, a program that creates musical structures from fractal geometry by blending fractals' properties of self-similarity with music's structure of theme and variation.

Lab Tour

Installing the one-disk Fractal MusicLab is a drag-and-drop process; no installer is provided. The manual briefly describes how the program works, and then dives into a set of tutorials. You're guided through the creation of a score from Iterated Function Systems (IFS) code, generating and playing sequences and creating your own IFS codes. The program opens a variety of windows on the main screen to access these and other functions.

Creating music from the supplied codes can be as easy or involved as you like. If you're in a hurry, you can simply load and render a code, generate a sequence, select some instruments and proceed to play. Fractal MusicLab also includes a variety of tools for editing anything from the initial IFS code through the filter definitions to the final music sequence.

Seeking Music In the Graphics

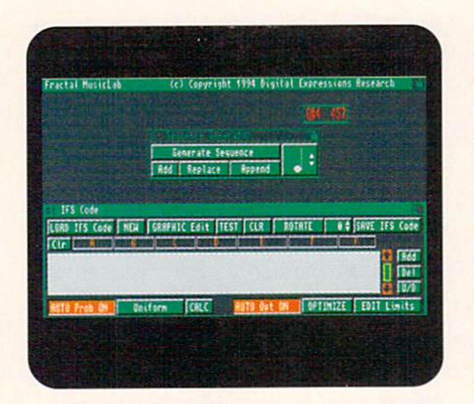
Unless you're particularly well-versed in both graphics and music, Fractal MusicLab isn't exactly a load-and-go program. If fractal geometry isn't one of your strong suits, you'll have to wade through some fractal basics before you can make the program do its thing. You will not, however, need to be a fractals expert to make music. As a musician, I breezed through the familiar territory of MIDI and sequences as described in the manual, but lost some confidence with ►

graphics descriptions such as affine transformations, IFS, and so on. Fortunately, Chapter 6 provides a helpful crash course in fractals. Starting the manual with the tutorials is a good idea; they certainly helped me to understand the program.

WOBBLY EXPLANATIONS

Unfortunately, many of the examples presented in the manual do not clarify the various features. For example, the first tutorial provides instruction on creating a score, and it explains the process for moving an image. However, no explanation is given as to why you might want to do that. The second tutorial—on generating and playing sequences—describes sequence windows but doesn't apply this information. Consequently, I finished the tutorials feeling insecure.

Digital Expressions' tech support acknowledged the difficulties with the manual, explaining that users of their earlier product, MusicLab-IFS, sought more technical details. I suspect, however, that most potential customers for Fractal MusicLab want it to generate interesting music for entertainment software, so focusing the tutorials and descriptions on how they apply to the creation of music would be most helpful.



Fractal MusicLab lets you create new sounds with your fractals.

FUN WITH FRACTALS

Don't be surprised if you can't get your first sequence to play. Until you get the knack of its workings, Fractal MusicLab seems to generate a lot of dead air. Also, the only way to view a sequence as it's played is to open the edit window and play the visible portion. And there's another design peculiarity: When you edit an existing filter in order to create a new one, you normally don't expect to lose the original filter; but Fractal MusicLab thinks otherwise. It's best to start from scratch if you don't want to lose an existing filter. (When creating a new one, by the way, you're limited to a four-letter filename.)

I'd like to see some way to test audio changes "on the fly;" the ability to operate in interlace mode, which would be of benefit in view of the program's many windows; and some predefined templates or styles, à la SuperJAM!

Although Fractal MusicLab generates music based on fractals, you must expect to apply heavy doses of input and careful massage if you want to create a musically useful format—unless you're not particular about the music you produce. For conventional soundtracks, you'd probably be happier with SuperJAM!, but for the explorer of new musical frontiers in fractal graphics, Fractal MusicLab is an interesting curiosity.

—Rick Manasa ■

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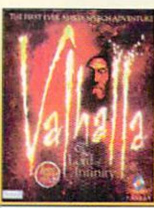
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The Game Preserve

By Peter Olafson, AW Games Editor

SHORT TAKES

Super Stardust

A–
1.3 –
2.0 –
3.0 ✓
Hard-drive installable.
Copy-protection.

Some ways back, in the review of Stardust—an exquisite version of Asteroids—I noted that Finnish developer Bloodhouse was at work on an AGA version, and wondered out loud how it could possibly top the original.

Well, the AGA version has arrived, and it's a beauty. In fact, it is kind of the same beauty it was the last time around, and that is cause both for joy and a little disappointment. Super Stardust *(Team 17)* is essentially Stardust AGA—this time rendered in 256 satiny colors, with new underwater missions, a spanking new version of the old interface and what passes for hard-disk support. (You have to create an install disk before you can copy the files over. And before you can play, the program reboots your machine and asks for Disk 1 as a key disk. How 1988 of them!)

And it's still a great time—all fuel-fed explosions, nasty ray-traced surprises, just enough strategy, and a finely-wrought difficulty curve. But we've seen Stardust, thank you, and Super Stardust doesn't make the same deep dent in the gamer's consciousness. They haven't topped it just yet—the CD32 version wasn't out at press time—but they've given Stardust a big brother that can sit proudly beside it on the shelf.



In the stars: Super Stardust promises to outshine 'em all with striking AGA color.

Benefactor

B–
1.3 ✓
2.0 ✓
3.0 ✓
Not hard-drive installable.
Copy-protection.

Another release from Finland's Bloodhouse (distributed here by *Psygnosis*). A tiny sprite runs and jumps about, collecting tiny keys, climbing tiny ladders, pulling tiny levers, and rescuing an even tinier sprite who can be tossed across gaps. It's cute and it's different, but that's not enough reason to build a game around it.

Starlord

D
1.3 ✓
2.0 ✓
3.0 ✓
Hard-drive installable.
Off-disk copy-protection.

Now we know why MPS's much-delayed space opera took five years to surface: It's the most boring game I've played this year. I love Mike Singleton's games—Midwinter, Flames of Freedom, and Ashes of Empire—but this co-design isn't part of that royal family. Starlord's *(MicroProse UK)* blend of resource management and dynastic warfare feels like a laundry list without payoff. (Not even clean laundry.)

Arcade Pool

A–
1.3 ✓
2.0 ✓
3.0 ✓
Not hard-drive installable.
Copy-protection.

The pool game for the rest of us. The 3-D approach adopted in Archer McLean's Pool *(Team 17)* is still the best of the breed for serious rackers. But this overhead-view game is rich in options and is simplicity itself in action. The CD32 edition comes wonderfully appointed in background noise.

Ruff 'n' Tumble

C+
1.3 ✓
2.0 ✓
3.0 ✓
Not hard-drive installable.
Copy-protection.

Renegade's Ruff 'n' Tumble is a polished platformer that would not look out of place with an arcade cabinet built around it, but it nevertheless doesn't quite sparkle. A very competent and colorful display . . . of old ideas.

The Clue!

B
1.3 ✓
2.0 ✓
3.0 ✓
Hard-drive installable.
Off-disk copy-protection.

Better than I expected, given Neo's history. (Do the words "Whale's Voyage" raise any hackles?) This big RPG/adventure casts you as an up-and-coming thief in post-WWII London. That's an original concept in itself, ►

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and, overlooking ethical considerations for the moment, The Clue! is home to a number of enjoyable sub-games—not the least of them burglary planning, target surveillance and fencing. (A dose of monotony, too, alas.)

UNIVERSE



Simply not up to the level of *Core's* first no-typing adventure, Curse of Enchantia. The graphics are so-so, the puzzles unnecessarily fussy, the story is clichéd, and the game feels trivial and rushed. And, like Enchantia, it's yet another five-disk adventure that won't go on HD.

IMPOSSIBLE MISSION 2025



Here's something from *MicroProse* that's completely different—an action adventure. It's a glossy '90s rewrite of Impossible Mission 2—released here in 1988 by Epyx—and it retains much of the original's rough-and-ready charm. (There's something compelling about accessing computers and searching background objects between spasms of the old jump and run.) And in a rare nod to history, they've included IM 2 as a bonus.

CRASH TEST DUMMIES



Demented. In *Virgin's* coin-op conversion, the blank-faced mannequins gradually lose limbs and are eventually reduced to hopping on one leg or dragging the torso along with their arms. It's morbid, the graphics are mediocre, and the play archaic, but it made me laugh out loud. I guess that's worth a . . .

BATTLETOADS

D–
1.3 ✓
2.0 ✓
3.0 ✓
Not hard-drive installable.
Copy-protection.

Mindscape didn't bother sending out press copies of this long-delayed conversion of the coin-op. (Imagine Golden Axe with fighting frogs and old Nintendo graphics.) Draw your own conclusions.

FATMAN: THE CAPED CONSUMER

B–
1.3 ✓
2.0 ✓
3.0 ✓
Not hard-drive installable.
Copy-protection.

Great idea: The pudgy main sprite of *Black Legend's* Hungarian platformer tromps about like an elephant, collects junk food for sustenance, fights with belches and carrots (they're for throwing, not eating), and generally throws his weight around. The play mechanics leave something to be desired, but this is sweet stuff.

TORNADO AGA



The original review some ways back found *Digital Integration's* high-end flight sim wanting speed and color. Here they are. The frame rate ►

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and the palette have been boosted, and to good effect. The dithering is gone, replaced by solid colors that bring Tornado's environment to life. Running on an 030-based A1200, with full detail enabled—a sight for soar eyes—it seemed slightly faster than the earlier version at lower detail. (It's still not smooth, but at least it's less choppy.)

Total Carnage

D
1.3 –
2.0 –
3.0 ✓
Not hard-drive installable.
Copy-protection.

ICE's Total Carnage is yet another woeful experience in getting killed repeatedly and unfairly under the Smash TV game engine. Fool me once, shame on you. Fool me twice, shame on me.

Liberation: Captive II

A–
1.3 ✓
2.0 ✓
3.0 ✓
Hard-drive installable.
Off-disk copy-protection.

Mindscape's RPG (formerly CD32-only) stands up quite well on disk. The only thing of consequence that's missing is the voices, and given that they weren't handled well to begin with, you can probably live without 'em. (It looks mahvelous, though; the walls can be as detailed as you want them to be, though it can take hours to generate 'em.) Like Captive before it, the game is pleasantly opaque, and it may take quite a while to get the hang of things. When you learn it, you'll love it.

Skidmarks

B+
1.3 ✓
2.0 ✓
3.0 ✓
Hard-drive installable. *
Copy-protection.

Acid's Skidmarks is a wonderful, slippery-tracked, angled-down racing game penned in Blitz Basic. It's great fun to just slew around the banked curves, slam into your opponents and try to make up time when behind. Unfortunately, the game doesn't really do anything whole-heartedly. (It's only semi-HD installable and only semi-AGA.) You'll want to play against your friends, as the computer opponents aren't worth the gas home.

Goblins 3

A–
1.3 ✓
2.0 ✓
3.0 ✓
Hard-drive installable.
Off-disk copy-protection.

We're down to one goblin now, but the designers have come up with lots of little creatures for him to cooperate with in this grand puzzle/adventure from France's *Coktel Vision*. Not to mention some genuinely wicked puzzles. Lament: The little anims that lent so much character to the first two games seem to have been downgraded here.

F1

B+
1.3 ✓
2.0 ✓
3.0 ✓
Not hard-drive installable.
Copy-protection.

In an earlier life, *Domark's* F1 was known as Vroom—a great polygon-based 3-D racing game played at breakneck speed. It was popular enough abroad to warrant a data disk, but never seemed to garner a US audience and quietly disappeared. You've been given another shot at it: F1 is basically Vroom 1.5, with support for a second player. If anything, it's faster.

Cosmic Spacehead

B
1.3 ✓
2.0 ✓
3.0 ✓
Not hard-drive installable.
Copy-protection.

Think of it as a starter kit for future LucasArts adventurers. This departure from *Codemasters'* long run of Dizzy games mingles broadly drawn point-and-click adventure sequences with intermediate platform bits. Neither part is exactly state of the art, but the combination is not unpleasant. And anything that coaxes kids away from the omnipresent platformers can't be bad.

Fantastic Dizzy

B
1.3 ✓
2.0 ✓
3.x ✓
Not hard-drive installable.
No copy-protection.

Well, Pretty Good Dizzy, anyway. *Codemasters'* long-running string of young people's arcade adventures—featuring a noble egg—has gotten more sophisticated and puzzle-oriented with each entry, and Fantastic is no exception. It's fun, and it's quietly intelligent. (On the other hand, I do wish some of the puzzles here were less for their own sake and more story-based.)

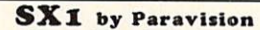
Game Pieces

Those of you with a hankering to play an obscure, tiresome, and unfriendly Norse board game should make a beeline for ***Mirage's*** **King's Table**—aka Ragnarok ***(Grade: C-)*** . . . **Snapperazzi *(Alternative)*** is a sort of goofy, charming Italian cartoon—so silly you can't help but find it agreeable ***(B)*** . . . The best of ***Black Legend's*** most recent crop of games from eastern Europe and Scandinavia is **Mega Motion**. This fiercely addictive, 100-level puzzler from Finland vaguely recalls Boulderdash, but only just; it's a wholly original creation ***(A-)*** . . . **Hyperion!**, from Norway, is an unabashed clone of David Braben's famed strategy/shooter, Virus—but without much color or character ***(C-)*** . . . And all I can say about **Hungary for Fun** is that you'd have to be to spend good money on this troika of shareware-level hand-me-downs ***(D)*** . . . **Summer Camp** and **Winter Camp** from ***Thalamus Europe*** are tiresome arcaders with mice ***(D)*** . . . Arnie first appeared a couple of years back as a primitive side-scrolling shooter. Now it's back as **Arnie 2 *(Zeppelin)***—an elaborate, dazzlingly colorful isometric shooter. But what it gained in beauty and sophistication, it has lost in speed—even on fast machines ***(D)*** . . . **Arctic Baron *(ReadySoft)*** is Transarctica by any other name, which we looked at as a European import some months back. Regrettably, the change of title for US release doesn't reflect any change in the substance, and this ***Silmarils*** strategy game, set in a frozen future, still lacks a strong center ***(C)*** . . . **Batman Returns *(Gametek)***: I'll give you three guesses as to why Gametek released this long-awaited movie license as a budget title. The two that aren't "Because it's crap?" don't count ***(F)*** . . . **Traps & Treasures & Nicky 2**: These two delicate arcade adventures are in much the same vein, but one works, and the other doesn't. ***Microids'*** followup to Nicky Boomreprises the singular charm and open-ended style of its predecessor ***(B)*** . . . **Traps & Treasures** (the first in a series of Amiga games developed by a revived ***Starbyte***) is graphically hotter, but also grimly linear ***(C)*** . . . **Out to Lunch *(Mindscape UK)*** is a very pleasant young person's platformer about a chef's quest for fleeing ingredients. But why is it available only for AGA? Surely the earlier chipsets could handle these modest graphics ***(B)***. ■

To locate vendors of the games reviewed, see the "Manufacturers'/Distributors' Addresses" list on p. 61.



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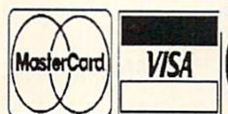
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Index to 1994 Articles and Reviews

Editor's Note: Individual entries in this index are presented under two major headings: Articles/Columns and Reviews. Articles/Columns are organized chronologically under the following subject categories:

- AGA
- Amiga Support/Help
- Buyer's Guide
- CD-ROM
- Cross-Platform Compatibility
- Desktop Publishing
- Graphics/Animation
- Hardware: Systems/Expansion/Peripherals
- Multimedia/Authoring Systems
- Music/Sound
- News/Profiles
- Operating System/Workbench
- Printers/Printing
- Productivity/Business
- Programming
- Telecommunications/Networking
- Video

Reviews are organized alphabetically under the categories of Hardware, Software, and Games.

ARTICLES/COLUMNS

When the talk turns to icons, books, or SCSI devices for your A1200, everyone turns to the Help Key column.

HELP KEY

BY TIM WALSH

STRETCHING THE A1200

Q. I currently own an A1200 equipped with a GVP A1230 50-MHz Turbo and an A1291. Could you tell me the feasibility of adding a tower so that I could add a CD-ROM, high-density floppy drive and a SyQuest drive?

Daniel L. Doctor
Marietta, GA

A. As no A1200 tower systems have yet to pass through the *AW* offices, I'll have to reserve judgement on those devices. For other Amiga models, some of the tower systems—such as Desktop Video Systems' Toaster Toolbox 4000—make it easy to connect additional drives and devices to your system.

While the A1200 offers only an IDE connector, your A1291 adds a much-needed SCSI port to your A1200. Daisy-chaining devices to it would allow you to add some of the peripherals you mention. To avoid device conflicts, you might be limited to two SCSI devices daisy-chained together. In the Reviews section of this issue, you will see Expansion Systems' SCSI+ device for the A1200. This product lets you reliably add up to five SCSI-ported devices. Conceivably, by adding the SCSI+, you could connect the A1200 to the Toaster Toolbox 4000 and add a multitude of hard drives and other SCSI-equipped devices.

If you want to add a CD-ROM, check out the same review in this issue, where you'll see Alfa Data's CD1200. This device allows you to add a dual-speed Mitsumi CD-ROM to your A1200. Be forewarned, however, that you will need an additional power supply and some form of a chassis if you use an internal, instead of an external, CD-ROM drive.

BEGINNING WORDS

*Q. I'm fairly new to computers and video. When I read the articles in **AmigaWorld**, I encounter plenty of items that I don't understand. Is there a book or list available for the latest terms and computer jargon? I would appreciate knowing where I could get something that explains some of the language used when describing Amiga products.*

Jackie Morgan
Santa Rosa, CA

A. You didn't specify which version of AmigaDOS you use, but as a beginner, any nontechnical Amiga-specific book would probably help. *AmigaWorld* published several Amiga books on both AmigaDOS 1.3 and 2.0 designed exactly for beginners like yourself. Unfortunately, they are long out of print.

If you're using AmigaDOS versions up to 3.0, Compute! Books published *AmigaDOS Reference Guide*, an excellent book co-authored by one of *AW*'s frequent contributors, Sheldon Leemon. Although it's also long out of print, you may still be able to get it from the author at 170 W. 12 Mile Rd., Madison Heights, MI 48071 (810/548-9029).

Bruce Smith Books, a UK-based publisher, publishes a variety of Amiga-specific books. Most useful among these is Peter Fitzpatrick's *Amiga A1200 Next Steps* (ISBN 1-873308-24-8). Although written specifically for the Amiga 1200, there's enough general Amiga information in the book to make it a useful tome for beginners.

Don't overlook video offerings, either: DevWare Video's (800/879-0759) VHS tape "An Introduction to the Amiga," covers AmigaDOS 2.1 through 3.0.

In your quest for learning more about the Amiga, you also can't go wrong by picking up more information about the increasingly popular area of telecommunications. The distinctions between specific computer platforms tend to disappear when you're learning about life on the I-way. Check with a local bookstore for publications from O'Reilly and Associates, including their best seller by Ed Krol, *The Whole Internet User's Guide and Catalog* (ISBN 1-56592-063-5). Another helpful Internet book for beginners is Jeffrey M. Cogswell's *Simple Internet* (ISBN 1-878739-70-4).

ICON ALTERATIONS

Q. I'm in the process of creating new icons for AmigaDOS 3.0 on my A1200. I discovered that I can change the default icon by saving its replacement as def_ILBM in the Env-Archive drawer. However, I'd like to change the appearance of other icons, such as the WBPattern.pre that appears in the Presets drawer in Prefs. Can you help me?

Patrick Kellum
Beatty, NV

A. You've come to the right place, Patrick. I just completed writing up the new freeware program, NewIcons, by Nicola Salmoria (see "Primetime PD," p. 7). You'll find the package offers several solutions to your question.

While NewIcons offers more than one way to copy icon images, here's one way to tackle the above exercise: Included with the NewIcons package you'll find a program called ReplaceImage. Let's say you like the appearance of a particular icon and you want to apply its image to another. You simply click once on ReplaceImage, hold down the Shift key, then click once on the icon whose image you want to copy. The next step is to find the file that you want to apply that image to, and double-click that file.

CreateDefaultIcon, also included with the package, works in much the same manner, allowing you to select multiple icons within large directories. The conversion process then occurs as fast as you can position the pointer and click the mouse. ■

*Send your questions to Help Key, c/o **AmigaWorld** Editorial, P.O. Box 802, 80 Elm St., Peterborough, NH 03458-0802.*

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We now have Toaster Oven Packages available! The 4000 Tower solution!

As this went to press, we still had not heard the word on the Commodore situation, however, we have been told to expect good supplies of Amiga's by Christmas. In the last several weeks, supplies have become more limited, and Amiga's have been more difficult, more expensive and much more time consuming to aquire. However, we *still* have supplies and we *are* continuing to ship units every week. We *have* shipped over 150 computers last month and more than 90 this month, so regardless of Roomers you may have read trying to talk you into abandoning the Amiga platform in favor of a Mac or PC, Amiga dealers *are* still supplying computers, slow but steady. Also, we have just received our first demo units of the exciting new A2200 from AMI-Tech Canada, and it is scheduled to ship in quantity by Mid December. We have an exclusive on the first 100 units, so call early to avoid dissapointment!

Introducing the New A2200!



Model A2200-1 Specifications

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Storage:	3.5" Floppy (880K) & 210 MB HD (1.8 MB / Second)

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$1,599 $2,129 CDN$

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RAM:	2 MB 32-Bit Chip RAM & 4 MB of Fast RAM (128MB Max)
Storage:	3.5" Floppy (1.76MB) & 420 MB HD (2.5 MB / Second)

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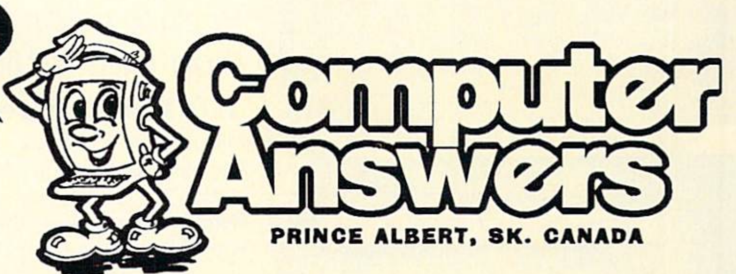
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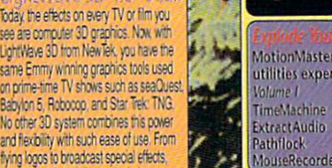
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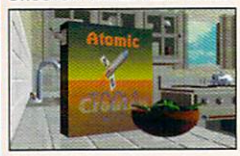
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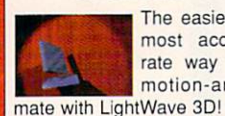
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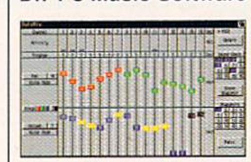
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Kudos, complaints, comments, concerns, and contributions from our readers.

Hotline Appreciated

I've just called your Commodore information hotline for about the fourth time in the last two months. As usual, your recording gave me good, solid information that just isn't available anywhere else. Although I've never written to a popular magazine (with praise or criticism), I felt it was necessary to let you know how much I appreciate this wonderful public service. For a person like me, who has owned a few Amigas over the years (and would like to buy another if I were assured of technical and software support), you have kept open the possibility that this wonderful computer might survive the poor business sense of its manufacturer. Millions of current and prospective Amiga owners (as well as third-party hardware and software developers) owe you a debt of gratitude. Thanks again.

Maj. Bill Bruner
Elmore, Alabama

Sequencer Amplification

Because Darius Taghavy said in his article on sequencer packages (Oct. '94, p. 19) that an in-depth analysis of notational features was beyond the scope of his review, I thought I would like to offer a few pointers in this area.

First of all, I discovered that Dr. T's is no longer supporting KCS or any other music package for the Amiga. *(Editor's note: Since the Taghavy article appeared, DevWare has picked up Dr. T's' KCS, Copyist and Tiger Cub and is now offering these at sale prices well below $100.)*

With respect to Dr. T's Copyist family used as an add-on to KCS, I have found it flawless in some areas, but buggy in others. You won't find any real-time notational-sequence editors for music in either KCS or Copyist. The latter has digital sound-processing (DSP) abilities, but does not provide this in real time, as does Bars&Pipes. Because the changes aren't directly reflected to KCS, you will always have to *export* your notational file to KCS every time you make a change. Now, when it comes to exporting these files, KCS is not able to load multiple staves properly, and if you try to save multiple staves as Copyist or MIDI files, KCS will have a problem converting them. Therefore, the Copyist family is only good for *importing* KCS sequences or MIDI files. Copyist provides very good output to a laser printer.

KCS Level II does provide another add-on called Quickscore, but this simply gives you an output screen for a sequence. Therefore, if you're like me and enjoy working with musical notes, you'll have to use something else.

I'm glad someone finally took the time to do a review on all the Amiga sequencers. Good work!

Philippe Neron
MicroIllusions Studios
Montreal, Quebec

. . . you have kept open the possibility that this wonderful computer might survive the poor business sense of its manufacturer.

Distant Suns Appeal

I've recently been gathering together notes 'n' stuff about the history of my Amiga software package, Distant Suns, with the aim of starting a scrapbook. This December marks the program's ninth year, and I thought it was about time to put everything into a single place. However, I never bothered to take any pictures of the early days and would like to ask *AmigaWorld*'s readers if they might have some of their own they would let me copy.

I am particularly interested in photos of the Infinity Software booth at the fall 1987 Commodore show at Disneyland and the San Francisco show in February of '87, and of the Virtual Reality Labs' booth at the Santa Clara AmiExpo in October of '89.

If any former Infinity Software employees are reading this, I would also like photos of the office and staff before things went to hell.

Mike Smithwick
INTERNET:mike@rahul.net

Amiga Education Net

Your article "Help! We Need Somebody" (Oct. '94, p. 15) prompts me to write you about The Amiga Education Network (TAEN), which I have established in Australia and would like to expand globally.TAEN is not a network in the sense of a BBS, although that might come later. Its purpose is to provide an Amiga-based global facility through which support for and information about the Amiga in relation to education can be disseminated and exchanged. It would be open to all persons or organizations interested in the Amiga in connection with education in any country. Although TAEN is currently restricted to Australia, I hope it eventually will include all countries.I would like to hear from anyone who uses the Amiga in education and would like to help to expand TAEN, perhaps by acting as a national representative. What I need are names and addresses, after-business-hours telephone numbers, a brief description of your background as it relates to the Amiga and how you use the Amiga in education. No faxes, please!

Basil Flinter
Coordinator, TAEN
P.O. Box353
Armidale, NSW, 2350
Australia ■



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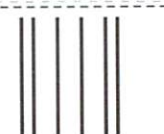
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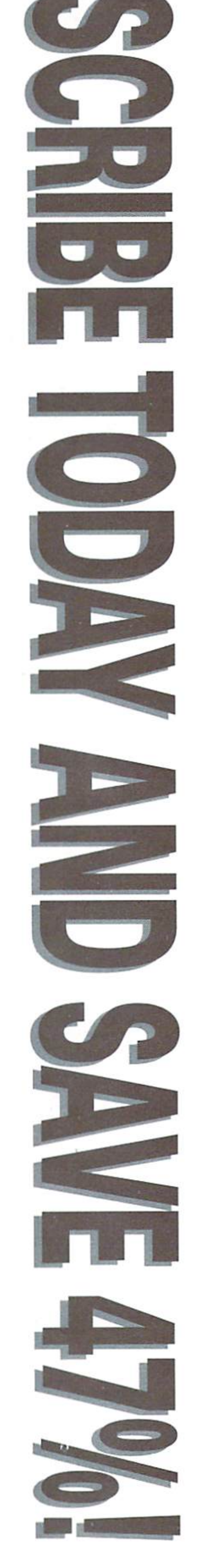
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UPCOMING FEATURES

March

Resources and support for Amiga users in the post-Commodore era. Product support and services; book, tapes and tutorials; BBSs and online support groups;eduction and training; find parts and equipment.

April

Hints and tips for desktop publishers. Also: Hands-on tutorials on using the latest version of PageStream.

May

Amigas in multimedia presentations, exhibitions, kiosk systems and other environments all over the country. Also: Profiles and interviews.


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